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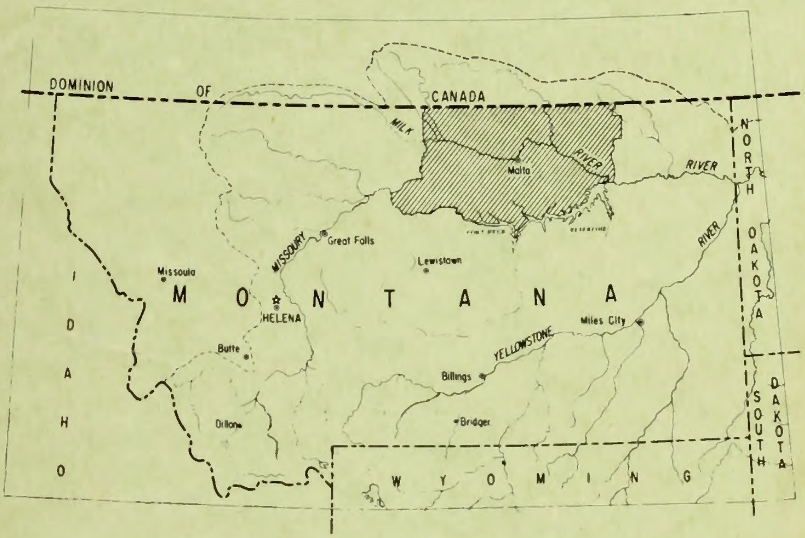

MONTANA

A MISSOURI RIVER BASIN INVESTIGATION

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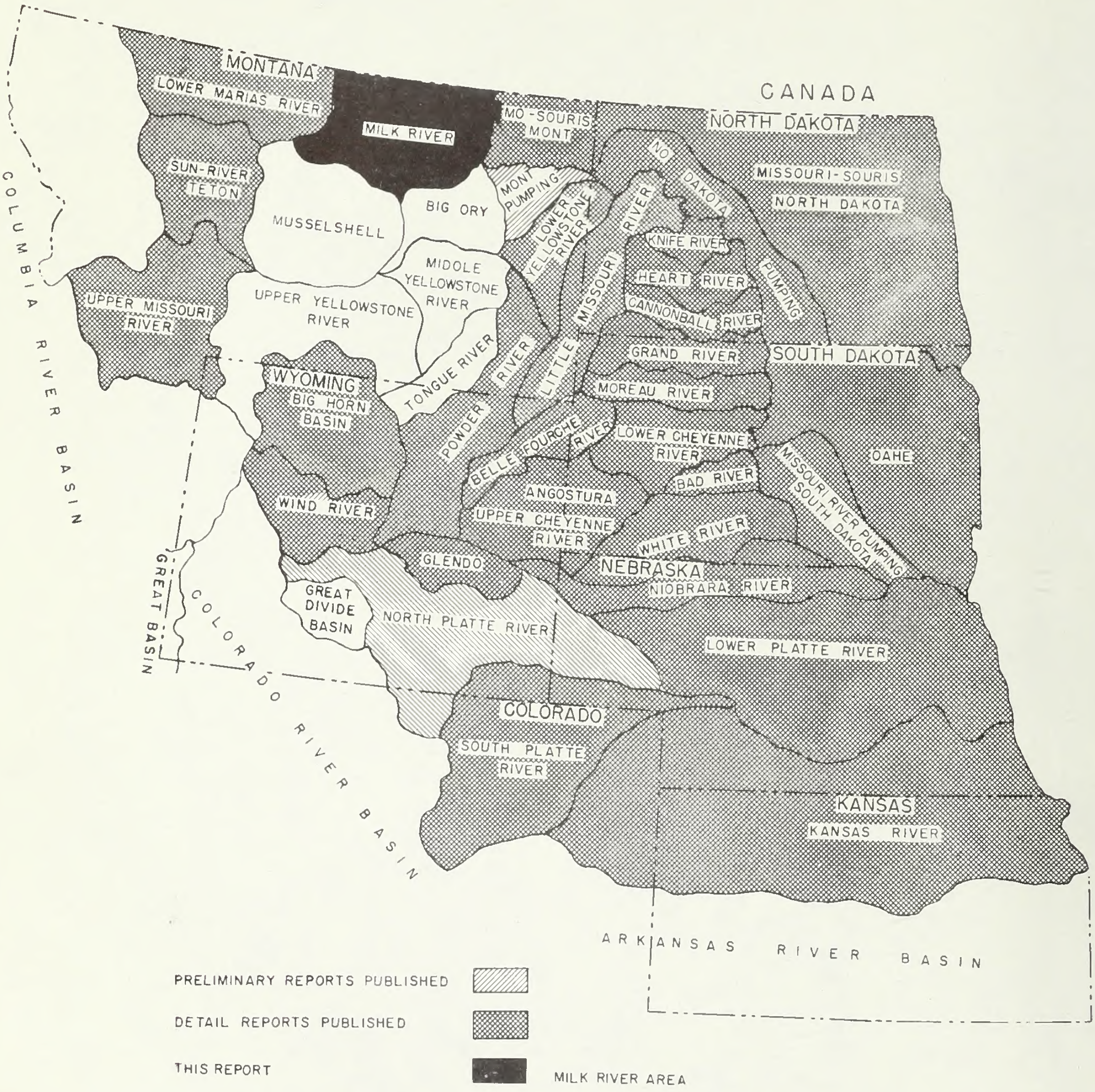

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Land Planning and Classification Report
Public Domain Lands

MILK RIVER AREA

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A Missouri River Basin Investigation

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Bureau of Land Management

Area 3

Denver, Colorado

March, 1960

The resource inventory and land status information contained in this report is based on data obtained by field examination and studies made prior to January, 1955. Changes in resource data or land status subsequent to January, 1955, are not necessarily in this report.

This report was compiled as a feature of the program of the Department of the Interior for the ultimate maximum development, conservation, and use of the resources of the Missouri River Basin.

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Memorandum

To: **U. S. Geological Survey Library, Room 6733**
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From: Area Administrator

Subject: Missouri River Basin Studies--Milk River Detail Report

We are transmitting copy No 177 of the "Land Planning and Classification Report, Public Domain Lands, Milk River Area, Montana," a tributary of the Missouri River Basin.

This report has been prepared as a feature of the comprehensive resource study and development program of the Bureau of Land Management, Department of the Interior, and is furnished for your information and use in connection with related programs. Since we wish to compile reports that will prove useful in the development and conservation of the resources of the Missouri River Basin, we will appreciate your comments.

If you need additional copies, please advise. You may feel free to return this report if you have no use for it.

Please sign the receipt form at the bottom and return the duplicate copy for our files.

W B Wallace

W. B. Wallace
Area Administrator

Enclosure

Milk River Report, copy No 177 received ____________________
(date)

____
(signature)

TRANSMITTAL AND ACKNOWLEDGMENT

Milk River Area comprises 9,102,996 acres between the United States-Canadian line and Fort Peck Lake on the Missouri River in northeastern Montana. This area is a tributary unit of the Missouri River Basin which is being studied in detail by the Department of the Interior in order to promote its maximum ultimate conservation development. This report includes a resource and landownership inventory of the area. Milk River Area is third in land area administered by the Bureau of Land Management among all of the tributary drainage report areas in the Missouri River Basin. The area to be administered by this Bureau, 2,941,772 acres, is exceeded only by the North Platte-Great Divide Basin, with 5,540,464 acres of administrative responsibility, and by the Big Horn Basin, with 3,658,828 acres.

Field examination of the public domain lands and of other lands intimately associated with them is the basis of this report. Information from other Federal agencies and from offices of the State of Montana is incorporated in the report. Livestock operators and other resource users have contributed valued information which has been included in this report. Field investigations and this report were completed by the Missouri River Basin staff of the Bureau of Land Management, Area 3, Denver, Colorado.

This report supplements similar studies for other tributary basins of the Missouri River. Tributary basins for which inventories, studies, and reports have been completed by the Bureau of Land Management are shown on the progress map which is the frontispiece of this report.

W.B. Wallace

W. B. Wallace
Area Administrator

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MILK RIVER AREA MAPS

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Sheet 1: Northwestern part. Blaine County and western Phillips County north of Milk River

Sheet 2: Northeastern part. Parts of eastern Phillips and western Valley Counties north of Milk River

Sheet 3: Southwestern part. Blaine County south of Milk River and the part of Chouteau County within the area

Sheet 4: South central part. Phillips County south of Milk River

Sheet 5: Southeastern part. Western Valley County south of Milk River

INTRODUCTION

Milk River Area is a rectangular tributary portion of the Missouri River Basin covering 14,228 square miles in northeastern Montana. This area extends 90 miles northward from Fort Peck Lake on the Missouri River to the U. S. A. -Canadian boundary line. Daniels County and the divide between Porcupine Creek and Little Porcupine Creek on the Fort Peck Indian Reservation demark the eastern edge of the area. Western boundary is the Hill-Blaine County line, 160 miles west of Daniels County. Drainage is the Milk River with a narrow band of small Missouri River drainage along the south. Milk River Area lies between Lower Marias River Area on the west and the Missouri-Souris Montana Area on the east. Milk River drainage extends northward into Canada and then west and south back into the U. S. A. to head in Glacier National Park, 150 miles west of the area. The frontispiece report status map shows the contiguous basin report areas. The 52 completed reports have been prepared for the ultimate conservation development and use of the Missouri River Basin by the Bureau of Land Management as a cooperating member of the Missouri Basin Interior Field Committee.

The preliminary land planning and classification report for the Milk River Area, Montana, was published by the Bureau of Land Management in June, 1953. That report defined the major problems relating to the public lands in the area and made recommendations for detailed studies. Detailed studies were completed in 1954, and the results of those studies are incorporated in this report. For study purposes, the area has been divided into three sub-areas, designated on the accompanying maps as Area Classification, Isolated Tract Classification, and the Fort Peck Game Range. The Area Classification areas and the Fort Peck Game Range shown on the five maps with this report include the areas of heavy concentration of public domain lands and the areas of most critical problems. In this part of the Milk River Area a resource inventory of all lands was made without regard to landownership, and detailed maps were prepared showing land resources and culture.

Isolated Tract Classification includes the portion of the area in which vacant public domain lands are scattered and lightly concentrated. The complete resource inventory was limited to the vacant public domain lands in this sub-area. Landownership status, principal drainage, and main cultural features only are shown on the maps for the Isolated Tract portions of the area. There are 919 tracts of public domain in the Isolated Tract Areas with a total area of 97,642 acres. These isolated tracts were examined individually and land classification reports on the form shown in Appendix B were prepared. Results of the examination of each tract are summarized in table 27 of this report. The description and classification summary of each tract is shown on each line of table 27. Distribution of these isolated tracts by counties within the area and their consolidated classification is given in the summary of table 27.

Field work on the Fort Peck Game Range was conducted jointly by the Bureau of Land Management and the Fish and Wildlife Service in 1952 and 1953. Methods used in this sub-area differ somewhat from those used in the Area Classification section, but results of the two methods are consistent. Maps and inventory data included in this report for the Fort Peck Game Range are those developed by this joint Game Range Survey. Methods used by the Bureau of Land Management in the inventory of resources are explained in the appendixes of this report. Many of the technical terms used in this report are defined in the appendixes and on the five maps with this report.

The purpose of this study is two-fold: First, to make an inventory of the surface resources of the study area; and, second, to propose adjustments in land use and management which will result in the most efficient use of the land administered by the Bureau of Land Management and its highest degree of integration with other lands in the study area. The five accompanying maps are an integral part of the report. Frequent reference to them is necessary to achieve maximum use of the narrative section.

Milk River Area is the center of an important area which produces milling wheat that is high in protein content. Milk River Irrigation Project with 8 districts provides water for 134,062 irrigable acres producing hay, grain, sugar beets and several other crops. Cattle and sheep are important livestock enterprises utilizing most of the land area. In addition to wheat, other small grains, hay, corn and alfalfa seed are grown on the 1,204,379 acres of non-irrigated cropland in the area. Major resources include gas, oil, gold, and timber. Fort Peck Lake, fourth largest man-made lake in the world, makes the southern boundary of the area. Blaine, Phillips, and Valley Counties sold farm products valued at $33,817,200 in 1957. Livestock and livestock products produced 51 percent of this amount; crops generated 49 percent. Precipitation in 1957 was ten inches for the area compared with a normal of thirteen inches. In 1954, with 15.25 inches of precipitation, livestock created 44 percent of the $33,695,800 cash returns and crops produced 56 percent. Of the $36,508,500 cash returns in 1956, 45 percent was derived from livestock and their products, and 55 percent from crops. This return was realized from a precipitation of 8.35 inches.

Milk River Area covers 9,102,996 acres, 2,941,772 acres of which are administered by the Bureau of Land Management. Total amount of Federal lands in the area is 3,880,083 acres. Federal lands consist of 1,999,911 acres of public domain, 933,466 acres of Land Utilization Project acquired lands, 27,862 acres of the Lewis and Clark National Forest, 595,388 acres of Indian Trust Lands in the Fort Belknap Indian Reservation, 115,386 acres in the Fort Peck Indian Reservation and 160 acres in the Chief Joseph National Monument. There are also 55,258 acres of Reclamation Purchase and Withdrawal, 17,301 acres of other withdrawals, 18,598 acres of Wildlife Refuge Lands, and 84,069 acres of Indian Allotted Lands outside of the Indian Reservations. In addition, there are 31,203 acres of Military Purchase land which was bought for Fort Peck Reservoir and 6,150 acres of miscellaneous Federal ownership.

Land Utilization Project acquired lands are second in area among Federally owned lands. These lands were repurchased for conservation purposes during the drought and depression years of the 1930's under the Bankhead-Jones Act. Administration of Land Utilization Project acquired lands in the Milk River Area was transferred to the Bureau of Land Management from the Forest Service by Executive Order No. 10787 of November 7, 1958. This is an area of 924,560 acres in Blaine, Phillips and Valley Counties.

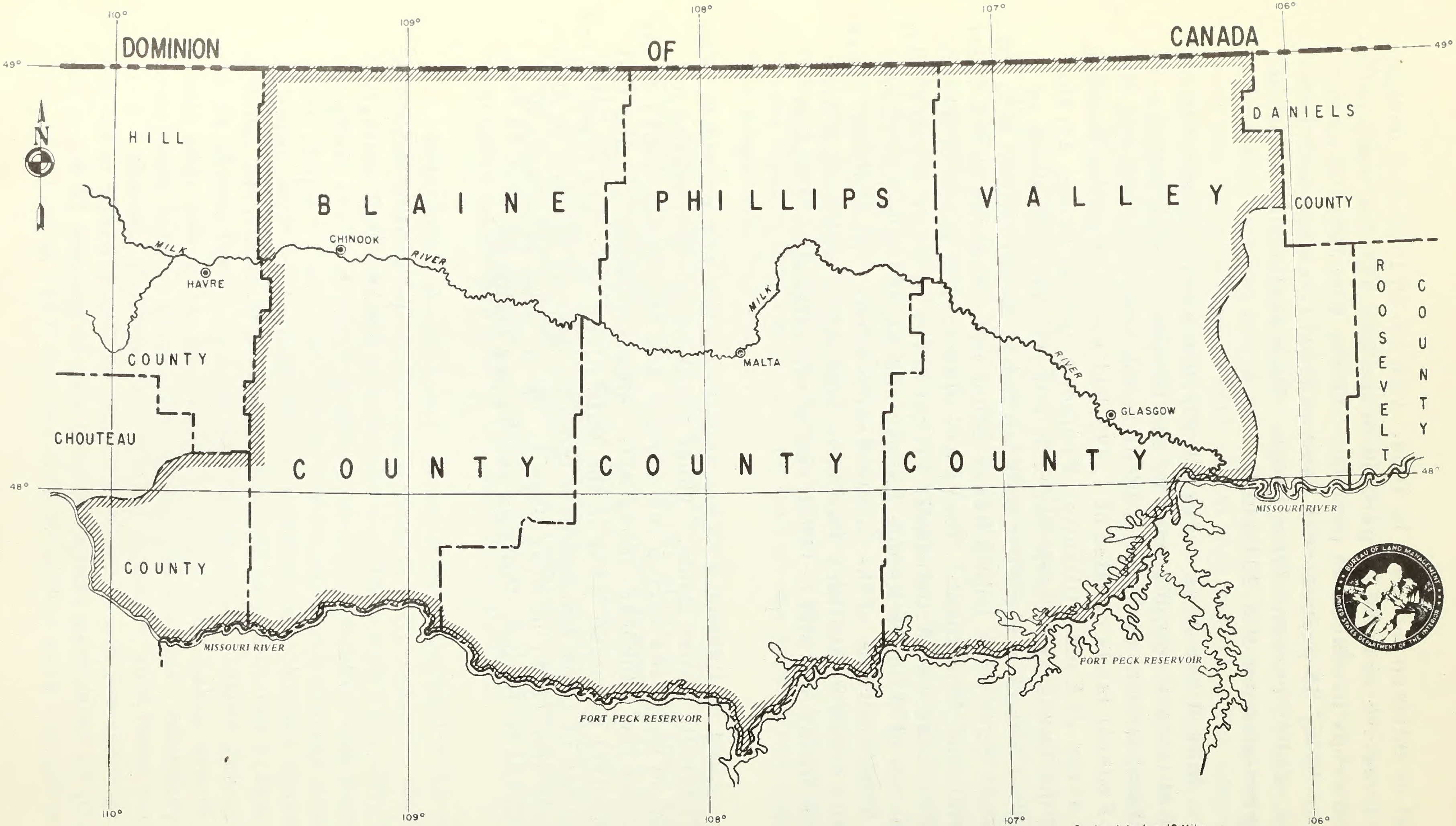


FIGURE 1
THE THREE PRINCIPAL COUNTIES OF THE
MILK RIVER AREA, MONTANA, 1959

GENERAL DESCRIPTION

Location and Size

The Milk River Area is located in north central Montana, between Fort Peck Lake on the Missouri River and the Canadian boundary. It extends from the western boundary of Daniels County and the Porcupine Creek-Little Porcupine Creek Divide on the Fort Peck Indian Reservation on the east to the eastern boundary of Hill County on the west. The dimensions average 90 miles north to south and 160 miles east to west. The area is 75 percent Milk River drainage and 25 percent minor drainages of the Missouri River. All of Malta Grazing District, an additional 366,029 acres in Chouteau County, and 342,617 acres in Valley County under the jurisdiction of Montana Grazing District Two are included within its boundaries. The Milk River Area includes 9,102,996 acres, 4,023,215 acres of which were included in Area Classification and the remainder is in Isolated Tract Areas, the Fort Peck Game Range, all of the Fort Belknap Indian Reservation, part of the Fort Peck Indian Reservation, and the Lewis and Clark National Forest. The gross area is depicted in figure 1 and also on the Milk River Area Public Domain Map with the preliminary report for the area.

Location of the area by Montana counties is as follows:

County	Sq. mi. in the area	Percent of total county in the area
Chouteau	572	15
Blaine	4,220	100
Phillips	5,184	100
Valley	4,252	86

Much of the data presented in this report has been compiled for the three-county area of Blaine, Phillips, and Valley Counties as representative of the area. The relationship of these counties to the Milk River Area is shown in figure 1.

Milk River is an international stream, being the only tributary of the Missouri River with a considerable part of its drainage in Canada. One-third of the drainage is in Canada and two-thirds is in the United States. Milk River rises in Glacier National Park, flows into Canada in the northeastern part of Glacier County and reenters the United States in northwestern Hill County, Montana. Milk River Area as considered in this report comprises the lower portion of the stream from the Hill-Blaine County line to the mouth of the river. In this area, Milk River is a meandering, slow-moving stream with numerous old oxbow lakes. Fall of the stream is less than two feet per river mile. Missouri River within the area is nearly all Fort Peck Lake. Area and length of the Missouri River within the area, and of the Milk River and its principal tributaries within the area are presented in table 1.

Topography

The surface features of the Milk River Area are generally flat plains and gently rolling hills typical of the Great Plains, although considerable dissection has occurred over portions of the area. With the exception of the area around the post-glacial Missouri River Valley, the general surface configuration was not greatly changed by the invasion of the Keewatin ice sheet. Several major drainage changes may be attributed to glaciation, the most important of these being the diversion of the Missouri River from its pre-glacial course through the present Milk River Valley, and the resulting interception of the Musselshell River, which prior to glaciation flowed north through Sun Prairie and the present Beaver Creek Valley. Rapid erosion has taken place along the post-glacial Missouri River Valley from its diversion point near Big Sandy to where it again enters its pre-glacial valley near Nashua. The present level of the river is from 300 feet to more than 600 feet below the level of the surrounding plain. Rapid cutting in all the lateral drainages has produced the Missouri River Breaks, one of the most broken and desolate badlands areas to be found anywhere in the State.

The Milk River is a sluggish, meandering stream, with many oxbow lakes along its course. The flood plain is generally quite flat, but frequent sloughs, representing former channels, give the arable land an irregular outline. The average gradient of the river from Havre to the vicinity of Nashua is 1.48 feet per mile. As far east as Malta the Milk River Valley averages 3 miles in width and is bordered by moderately sloping benchlands. In the Big Bend country, between Malta and Fenchman Creek, the valley narrows down to less than 1 mile, and here it is bordered by steep clay hills and sandstone escarpments. East of Frenchman Creek the valley again widens and averages 2 miles wide through Valley County. Moderately sloping, dissected benchlands border the valley on the north and sandstone and shale breaks are found on the south.

The general monotony of the plains is rather abruptly relieved by two isolated groups of mountains. The Bearpaw Mountains

Table 1.--River mileage and drainage areas, Milk River Area, Montana

	Distance above mouth (miles)	Distance below source (miles)	Drainage area (square miles)	Portion of drainage area (percent)
Missouri River				
At Milk River:				
Above Milk River only	1,857.4	814.0	57,810	10.92
Including Milk River	1,857.4	814.0	81,610	15.42
At Fort Peck Dam	1,868.7	802.7	57,725	10.90
At Judith River, including Judith River	2,114.7	556.7	38,940	7.36
Within the area and southward	1,857.4 to 2,114.7	556.7 to 814.0	18,870	3.56
Missouri River only within the area and north and south, including Milk River	1,857.4 to 2,114.7	556.7 to 814.0	42,670	8.06
Milk River				
Entire drainage	0.0	755.0	23,800	100.00
Within area and northward in Canada	0.0 to 387.0	368.0 to 755.0	17,726	74.48
Upstream or west of the area	387.0 to 755.0	0.0 to 368.0	5,890	25.52
Near Vandalia, Montana	112.4	642.6	21,833	91.74
Malta, Montana	216.8	538.2	12,457	52.34
Chinook, Montana	363.4	391.6	6,467	27.17
Lohman, Montana	379.1	375.9	6,074	25.52
Milk River tributaries within the area 1/				
Porcupine Creek			732	3.08
Willow Creek			369	1.55
Cherry Creek			206	0.87
Brazil Creek			95	0.40
Antelope Creek			108	0.45
Canyon and Buggy Creeks			142	0.60
Rock Creek			1,416	5.95
At Canadian boundary	199.2		254	1.07
Beaver Creek			2,060	8.66
Larb Creek			597	2.51
Frenchman Creek			2,924	12.29
At Canadian boundary	203.4		2,613	10.98
Whitewater Creek			1,186	4.98
At Canadian boundary	212.6		662	2.78
Little Cottonwood Creek			282	1.18
Cottonwood Creek			816	3.43
Assinniboine Creek			128	0.54
Alkali Creek			222	0.93
Peoples Creek			750	3.15
Savoy Creek			132	0.55
Thirty Mile Creek			235	0.99
Snake Creek			316	1.33
Battle Creek			1,816	7.82
East Fork			527	2.21
Near Canadian boundary	411.8		98	0.41
Lodge Creek			1,282	5.39
Near Canadian boundary	437.0		806	3.39
Red Rock Coulee			383	1.61
Clear Creek			149	0.63
22 tributaries listed within the area			11,316	47.55

1/ Area tributaries listed number 22 and vary from 95 to 2,060 miles of drainage area.

Compiled from Missouri River Basin Mileage and Drainage Areas, Corps of Engineers, U. S. A., Missouri River Division, Omaha, Nebraska, June 1949.

(maximum elevation 7,040 feet) and the Little Rocky Mountains (maximum elevation 6,500 feet) are igneous formations which rise 1,500 to 3,500 feet above the general level of the plain. South of these mountains are gravel covered benches dissected by deep canyons which lead abruptly into the more severely eroded breaks. The Larb Hills of south Phillips and south Valley Counties also rise above the general level of the plain. Sandstone caps on these hills and the underlying shales have been deeply eroded, leaving high sandstone escarpments surrounded by steep clay ridges.

The area north of the Milk River is generally covered by glacial drift, and is characterized by a gently undulating topography with many scattered lake depressions or "potholes." The Big Flat area around Turner and Loring is a remnant of a formation known to geologists as the Flaxville Plateau. The elevation of this plateau is approximately 3,200 feet, and it rises about 300 feet above the general level of the plain. It is not covered by glacial drift, and is generally much flatter than the surrounding benches. In south Valley County the glacial drift has been almost entirely removed, and the erosion of the Bearpaw shales has produced an area characterized by barren clay hills and ridges, with flat badlands basins dissected by deep gullies. This area becomes almost impassable during heavy rains, due to the heavy, sticky gumbo mud. Locally the major drainages of the northern area have cut deeply through the glacial drift and into the underlying sandstones or shales, producing isolated areas of badlands topography. The largest of these areas occurs along Frenchman Creek and its tributaries near the Canadian boundary, where post-glacial erosion has produced an area which resembles rather closely the badlands of south Valley County.

Geology

The Milk River Basin is located in the west-central portion of the Great Plains physiographic province. Erosion of the Great Plains province increases to the west, and it is believed that in the western part as much as 2,000 feet of material has been removed. At the present time, the Milk River is a tortuously meandering stream with a very low gradient flowing in a valley much too big for it. From Havre to Malta, the river mileage is 185 miles with an average gradient of 1.5 feet per mile. From Malta to its confluence with the Missouri River, the river mileage is 217 miles, with an average gradient of about 1 foot per mile. Because of low stream gradient, low channel capacity and a large drainage area, the Milk River has been aggrading its valley floor below Havre until its present channel is now 100 feet or more above the original channel and this process of aggradation is actively going on at the present time, accompanied by frequent floodings.

The Milk River Basin is not an area of great crustal disturbances. In the east central part, a gentle up-bowling of the crust formed the Bowdoin Dome, activating late Tertiary and early Pleistocene erosion which stripped much of the land surface below the level of the Flaxville Plain, removing the gravels over a large area. In the southwest, diastrophic forces formed the Little Rocky Mountains similarly to the Black Hills, but on a much smaller scale. Subsequent erosion has exposed the pre-Cambrian core cut by Tertiary intrusives and left the flanks lapped by sediments of Cambrian, Ordovician, Devonian, Mississipian, Jurassic and Cretaceous ages. The youngest sediments consist of terrace gravel deposits of Quaternary-Tertiary age. The Tertiary intrusives were not accompanied by any known large scale mineralization, but there was some minor sulphide mineralization carrying some gold value which was mined in the early days. In the west part of the area, Tertiary vulcanism formed the Bearpaw Mountains, only the eastern portion of which is in the basin. Subsequent erosion has stripped much of the volcanic deposits, baring the volcanic necks and plugs. In the metamorphored sediments adjacent to the volcanic necks near Lloyd, showings of argentiferous galena associated with minor amounts of pyrite and chalcopyrite have been found, but no valuable ore bodies have been developed.

Most of the Milk River Basin surface is formed on Cretaceous sediments, of which the Bearpaw shale, containing some bentonite beds, is most extensively exposed. Bearpaw shale is followed by the underlaying Judith River formation containing sandstone, siltstone, sandy shale, and clay. The Claggett shale, containing some bentonite beds, underlays the Judith River formation. Remnants of the younger Hell Creek formation which is underlain by Fox Hills sandstone, both of which overlay the Bearpaw shale, are found in the southeast quarter of the basin. In the northeast quarter there are deposits of Tertiary Flaxville gravels overlaying the Tertiary Fort Union formation, with exposures of Cretaceous Hell Creek formation and the underlying Fox Hills sandstone on the western flanks. In the northwest quarter is another fairly large exposure of the Tertiary Flaxville gravels with exposures of Cretaceous Fox Hills sandstone on the southern and western flanks. The Flaxville gravels and derivatives are the main source of sand and gravel in the basin other than small Quaternary-Tertiary terrace deposits on the flanks of the Little Rocky and Bearpaw Mountains. Also on the flanks of the Little Rockies and the Bearpaws are exposures of older Cretaceous sediments, including the Eagle sandstone, Colorado shale, and Kootenai formation, which are underlain by the older formations upturned and exposed on the flanks of the Little Rockies, as mentioned above. Location of geological formations and oil and gas fields within the area is shown on the Geological Map of the area, figure 2.

Soils

The soils of the Milk River Area are derived from three sources; drift and morainal material of the glacial period, alluvial deposits in recent and ancient stream and lake beds, and exposed geological formations. Over most of the northern part of the area the soils are predominantly derived from glacial drift. Over much of the area south of the Milk River the glacial drift is very thin or entirely lacking, and soils of an entirely different type have evolved from the exposed Bearpaw shales. Alluvial soils are found on the flood plains of the major streams and constitute the irrigable soils of the area. The Soils Map, figure 3, shows the location of soil types in the area on a broad generalized basis.

The uplands of north Phillips County and north Valley County west of Opheim are covered by loams, sandy loams, and stony loams of the Scobey series. These soils also prevail over portions of northeast Blaine County, south Blaine County north and east of the Bearpaw foothills, and south Phillips County where there is sufficient glacial drift. The Scobey soils are dark grayish brown, containing varying amounts of coarse glacial till and boulders, and are characterized by an undulating surface and shallow lake depressions. Where the topography is favorable the Scobey loams and sandy loams are considered good dryland agricultural soils, although considerable clearing of glacial stones is usually necessary. The Scobey stony loams are generally classed as grazing soils and produce good stands of range grasses. The Range Sites for the Scobey soils are primarily Ordinary Upland and occasionally Sandy or Shallow. Range Sites are one of the measuring devices used in the inventory of the Milk River Area. Area Range Sites are listed in Appendix E and on the five Milk River Area maps with this report.

The Turner fine sandy loams have developed from the preglacial Flaxville gravels in the Big Flat area near Turner and Loring. These soils are similar to the Scobey loams, but are generally less rocky and produce somewhat higher crop yeilds. The Range Site for the Turner soils is Ordinary Upland. The Blaine stony loams occur on the slopes and foothills of the Bearpaw Mountains. These soils vary widely in color and texture,

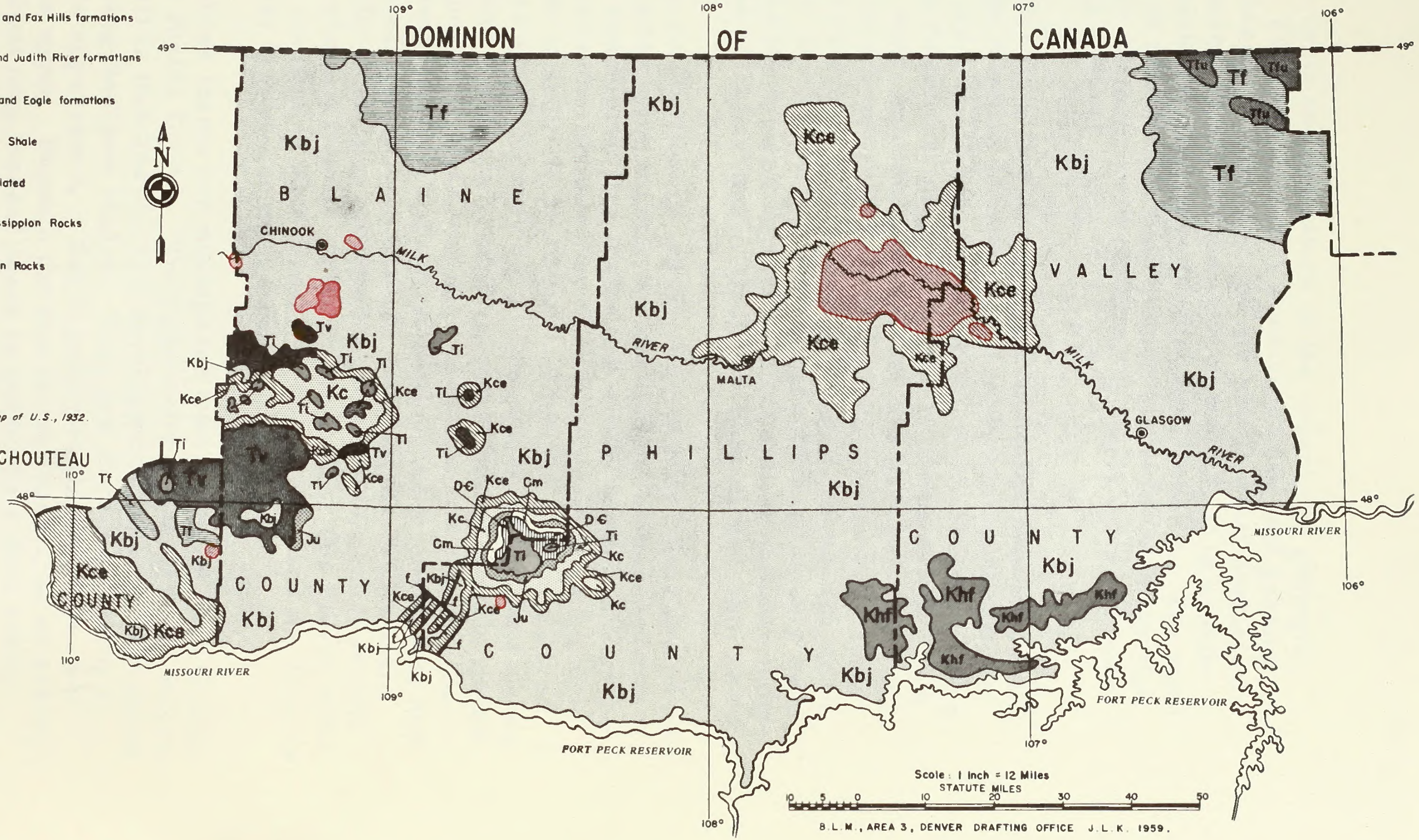
FIGURE 2

GENERALIZED GEOLOGIC MAP OF THE MILK RIVER AREA, MONTANA,
INCLUDING
OIL AND GAS FIELDS

EXPLANATION

Tf	- Tertiary Flaxville Gravels
Tfu	- Tertiary Fort Union formation
Ti	- Tertiary Intrusives
Tv	- Tertiary Volcanics
Khf	- Cretaceous Hell Creek and Fox Hills formations
Kbj	- Cretaceous Bearpaw and Judith River formations
Kce	- Cretaceous Claggett and Eagle formations
Kc	- Cretaceous Colorado Shale
Ju	- Jurassic Undifferentiated
Cm	- Carboniferous Mississippian Rocks
D-Є	- Devonian to Cambrian Rocks
——f	- Fault
🟥	- Oil Field
▨	- Gas Field

Modified from U. S. G. S. Geologic Map of U. S., 1932.



B.L.M., AREA 3, DENVER DRAFTING OFFICE J.L.K. 1959.

depending on depth and the nature of the underlying geologic formations. They are generally considered the best grazing soils of northeastern Montana, and are used almost exclusively for this purpose. Wherever they are cultivated, it is usually for the production of supplemental feed for livestock. The most common Range Site for the Blaine stony loams is Ordinary Upland, although Shallow, Very Shallow, or Sandy sites are occasionally found on these soils.

The Bainville loams are found on scattered benches south and east of the Bearpaw Mountains and on the Lance sandstone formation in the Larb Hills. These soils are characterized by a rather broken relief with many sandstone outcrops and they are usually quite sandy and immature. They are used primarily for grazing, but where topography and precipitation are favorable, good crops of corn and small grains may be produced. In south Valley County, the Bainville loams are practically the only soils which are used for dryland agriculture. The most common Range Sites for these soils are Sandy, Ordinary Upland, and Thin Breaks.

The Pierre clay loams and the Lismas clay loams are closely related, the latter being merely the raw and unweathered phase of the former. The Pierre clay loams are widely scattered over the report area while the Lismas clay loams are generally confined to the badlands of south Valley County and to the Missouri River breaks. These soils are very hard and tough when dry, and sticky when wet. They are easily eroded and are characterized by rough and broken topography and many bare clay hills and ridges. Because of the heavy texture and low fertility of these soils, they are rarely cultivated, except on scattered areas of the Pierre soils where the surface has been modified by deposits of a more friable material, or where irrigation water is available. The Pierre soils are generally classed as Thin Breaks or Clay sites, and the Lismas soils are nearly always classed as Shale or Badlands.

The Phillips loams are widespread over south Phillips County and northwest Blaine County. They generally occur on areas where the glacial drift is thin and the soil development has been influenced by the underlying Bearpaw shales. They are characterized by a rather desolate appearance, a flat to gently rolling surface, and numerous bare spots. Beneath the thin loamy topsoil, at an average depth of about nine inches, there is generally a dark heavy claypan about 12 inches thick. A strong concentration of lime and gypsum occurs immediately beneath the claypan and this is underlain by a relatively thin layer of glacial drift. Most of the Phillips loams have blowout spots over 25 to 60 percent of the surface, and these areas are classed under the Range Site, Scablands. Where less than 20 percent of the surface is blown out, they are generally classed as Ordinary Upland or Shallow. During years of normal rainfall, cultivation of these soils is usually fairly successful in the less scabby areas, but the blowout spots can usually be located on the cultivated areas because of the stunted growth of grain on the spots.

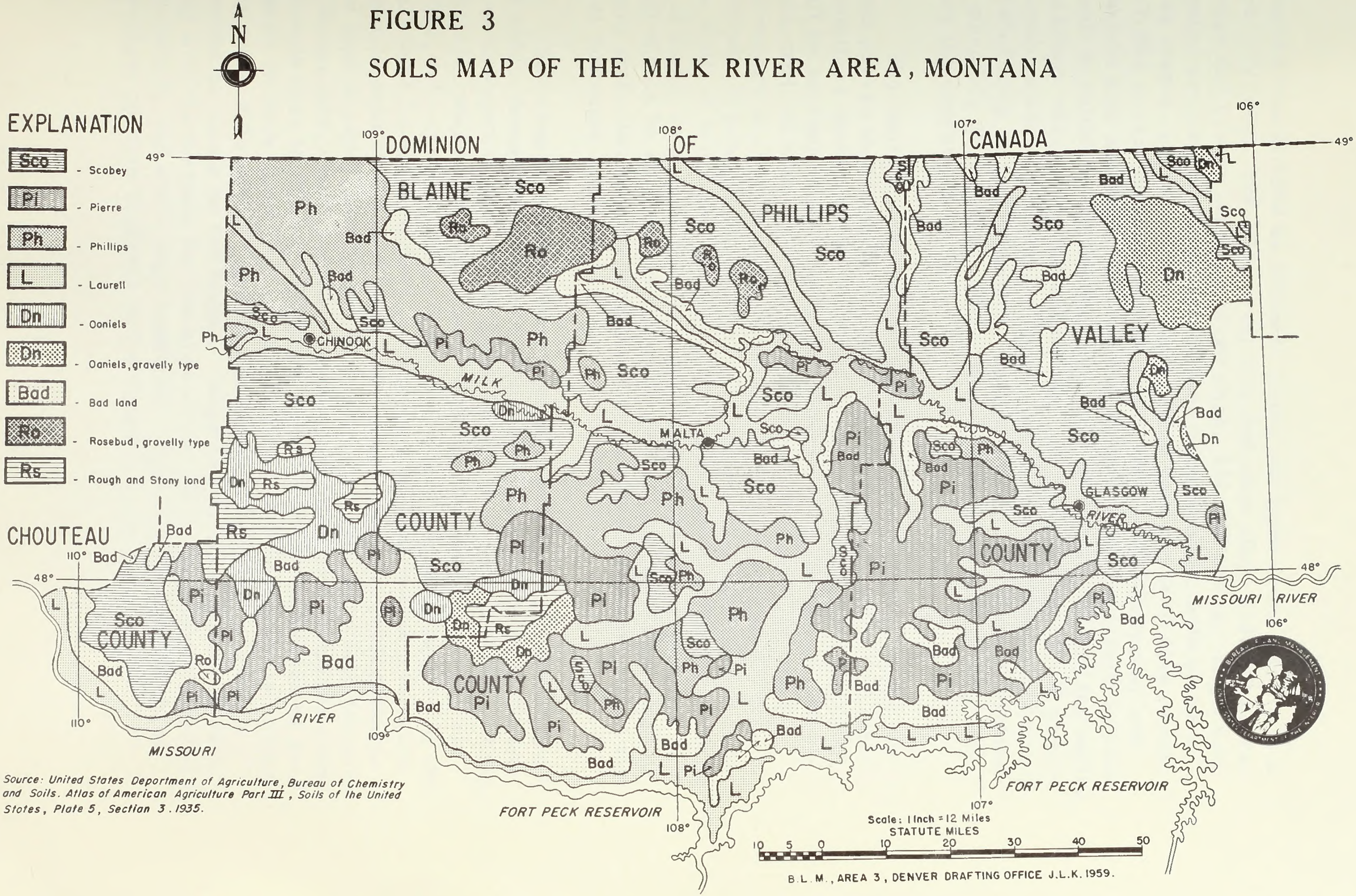
There are a number of alluvial, colluvial, and generally undifferentiated soil types in the various drainages of the area. The alluvial soils of the Milk River Valley exhibit wide variations from very coarse sand to heavy silty clay, depending on drainage conditions and the nature of the parent material. Most of these soils must be irrigated for successful crop production. The Range Sites for these soils are Lowland, Wetland, and occasionally Ordinary Upland or Saline Lowland. The badlands basins are a colluvial soil type which is found on the flood plains of streams in the badlands of south Valley County. They are locally known as alkali flats or hardpans. These areas are generally composed of shaley material from the surrounding hills and may be covered by a thin layer of sandy material which gives the soil a glazed appearance. These soils are not generally suited to cultivation, but some hay is raised in the Willow Creek Valley in areas that can be flood irrigated. The most common Range Site for these soils is Saline Lowland and occasionally Shallow.

Two soil surveys are available for the area: Soil Survey (Reconnaissance) of The Northern Plains of Montana, 1930, and Soil Survey of the Milk River Area, Montana, 1928. Both of these surveys were published by the Bureau of Chemistry and Soils of the Department of Agriculture in cooperation with the Montana Agricultural Experiment Station. The Milk River Area survey is limited to the valley of the river and the lower parts of the tributary valleys along with such bordering uplands as might be irrigable from Havre eastward to the mouth of Milk River, a total of 624,000 acres. The survey of the northern plains starts at the foot of the Rocky Mountains and extends eastward to North Dakota, including the northern tier of Montana counties. All of the Milk River Area is included in this survey which is the source of the Soils Map, figure 3.

The Milk River Area survey groups soils of the area into two general classes, uplands and bottom lands. Uplands are divided into glacial and residual soils which are used for grazing and dry farming. The bottom lands are being used for irrigation farming. They are grouped in three soil series. The entire area

FIGURE 3

SOILS MAP OF THE MILK RIVER AREA, MONTANA



Source: United States Department of Agriculture, Bureau of Chemistry and Soils. Atlas of American Agriculture Part III, Soils of the United States, Plate 5, Section 3. 1935.

mapped was divided as follows: loam, all types from clay loam to gravelly loam, 358,784 acres; clay and silty clay, 143,488 acres; rough and broken land and river wash, 121,728 acres. Eight soil series are listed, the principal ones being Scobey, with stony to clay loams, 157,696 acres; Havre, fine sandy to silty clay loams, 117,552 acres; Bowdoin clay and silty clay, 112,128 acres, and Harlem clay and silty clay, 64,832 acres. The heavy soils are difficult to cultivate and handle, and large areas are utilized for native bluestem wheatgrass (bluejoint) hay. Irrigated soils should employ a crop rotation, including a high-return crop, a legume, and a cultivated crop to control weeds. Livestock are considered essential to properly utilize crops and crop residues and to efficiently employ the operator's time.

The Northern Plains Survey, 1930, stated that: "It has not been proved that farming can survive even under better economic conditions than those that now prevail. It is certain that farming will be successful only where all the natural conditions are favorable, and, in order to make the best use of the land, it will be necessary to adapt agriculture to the natural and economic conditions. If production on the best lands is only slightly more than the limit of profit and inferior soils cannot be cultivated profitably, it is highly important that the relative productivity of all types of soil should be studied and that cultivation should be discouraged on those soils that give no promise of profitable yields even under the best economic conditions."

Soil characteristics were considered in the field inventory of all public domain lands and of associated lands in the Area Classification sections of the Milk River Area. The five Milk River Area, Montana, maps with this report show the soil characteristics for 4,023,215 acres, of which 2,155,560 acres are administered by the Bureau of Land Management. Soil characteristics shown for each formula area on the five maps are: depth, texture, permeability, and type of underlying or parent material. Associated land features of Range Site, slope and erosion conditions are also given for each formula area in the Explanation of Symbols in the Formulas as presented on each of the five maps. Each of the formula areas, which are areas differing in vegetal or physical character, is given a number as shown on the maps. These numbers are listed on each map with the formula for the area which shows the characteristics mentioned, and also range condition, vegetal type, and the three principal species of plants in the formula area.

Climate

Climate is of unusual importance in the Milk River Area. The high plains of northern Montana experience severe winters; so severe that residence in the area is discouraged. Rainfall in the area is so low on the average and so apt to be deficient that the area is marginal for dry farming because of limited moisture supply. Rainfall is so limited that it is virtually necessary to practice alternate cropping after a year of clean cultivated fallow. Winds prevalent in the area make it necessary to practice strip cropping, alternate strips of crop and fallow. Climate also makes it desirable economically to combine livestock with dry farming. Summer rains usually occur as showers, and particular localities may not receive precipitation at the right time or in sufficient quantities to produce a crop for one or for several years. Rains after grain has reached a hard "dough" stage do not help the crop and may ruin it despite the fact that they make the same effect on the amount of annual precipitation as do earlier rains which are effective in producing a crop. Rainfall after July 10 is usually of little or no value to small grain crops of the current year. Corn and sorghum, relatively unimportant crops, are benefited by later rains, as they are harvested in the fall or late summer.

Seasonal distribution of rainfall timed so that soil moisture will be sufficient to keep crops and range forage growing vigorously is very important. Such favorable distribution of precipitation usually occurs on years of normal or above normal rainfall. Exceptions to this experience do occur, as in 1933, when the summer rains came after a July drought, too late to benefit the crops. Most of the precipitation usually occurs during the growing season, April to September, inclusive. Rainfall in this six-month period averages about 75 percent of the total annual precipitation. Spring planted small grains, which are the principal crops, are benefited most by the precipitation falling between March 1 and July 10. These dates may vary somewhat from year to year according to climatic conditions and time of planting. Amount of moisture stored in the soil at planting time is also an important factor. Precipitation of sufficient value combined with proper timing to keep crops growing vigorously to harvest means millions of dollars to the area. Good crops produce twenty millions of dollars annually; low rainfall or poor distribution usually spells crop failure with no returns.

Severe winters, with strong winds and low temperatures, are a problem for livestock, especially on open plains in the area. Badlands areas, especially in the Missouri breaks, afford considerable winter protection for livestock. The southwestern part of the area, protected by the Bearpaw and Little Rocky Mountains, is frequently favored with Chinook winds that break bleak winter temperatures. This area is favored for winter grazing and for producing winter wheat. Winter winds usually keep ridges and high ground free of snow, permitting winter grazing on these locations in the rest of the area. Crust forms on the snow during most winters, preventing grazing by livestock over most of the area. Winter conditions virtually compel livestock operators to feed hay.

Temperature, precipitation, frost data, and years of record for twelve stations in the area are given in table 2. Temperatures range from 59 degrees Fahrenheit below zero to 113 degrees above zero. Frost free days number 115 to 134. Average annual precipitation varies from 10.81 inches at Fort Peck on the Missouri River to 16.41 inches at Clear Creek in the Bearpaw Mountains. Stations on the plains have annual amounts of precipitation ranging from 11.38 inches at Opheim to 13.04 inches at Chinook and Glasgow. Hail frequently causes damage to crops and range forage over parts of the area.

Annual and seasonal rainfall is usually sufficient to produce good yields of range forage. Over most of the area, these factors also usually suffice to produce fair to good crops of hay, small grains, and flax on well-adapted sites with good soil, under a strip cropping with alternate fallow system of production. Climatic conditions permit the production of corn and this crop has been increasing in importance in recent years. Corn is grown in alternate strips with small grain, especially in Valley County. This practice helps to break the force of the wind for small grain or fallow.

Climate has a great effect on the area, amount and value of wild hay cut in the area. Dry years stimulate the cutting of hay where even the range grass is high enough to pay to cut; and the lush growth of native grass during wet seasons increases yields of wild hay. Climatic conditions encourage the production of sugar beets and potatoes on irrigated land. Precipitation is usually only sufficient for marginal production under dry farming, and it is necessary to practice stringent conservation measures to maintain production and prevent erosion. Low average precipitation in parts of the area virtually prevents non-irrigated farming. In these sections only the good soils on favorable sites may be used as farming-grazing land. These best sites with good soils should be cropped only during years favorable for production, being in range forage or fallow during less favorable years.

Table 2.--Climatological data for stations in or near Milk River Area, Montana, 1957

Station	Temperatures in degrees F: Jan. mean F°	July mean F°	Max. F°	Min. F°	Avg. dates killing frost: Last in spring date	First in fall date	Avg. days frost free number	Avg. ann. pptn. inches	Elevation feet	Yrs. of Record: For temp. no.	For pptn. no.
Chinook	13.7	69.8	110	-50	May 13	Sept. 18	128	13.04	2,502	53	60
Glasgow	8.0	70.5	113	-56	May 20	Sept. 17	120	13.04	2,092	34	45
Malta	10.2	70.2	106	-56	May 17	Sept. 24	130	12.78	2,250	49	49
Fort Peck	10.0	72.4	108	-54				10.81	2,144	18	24
Opheim	8.7	67.6	102	-41	May 24	Sept. 19	118	11.38	3,000	34	28
Turner	12.4	68.5	106	-44				12.13	2,800	41	22
White Water								12.58	2,316		22
Zortman	20.5	66.0	103	-51	May 27	Sept. 19	115	16.12	4,200	12	8
Harlem	12.2	68.0	107	-50	May 16	Sept. 21	128	12.68	2,371	10	27
Clear Creek	15.2	67.0	103	-38	May 26	Sept. 23	120	16.41	4,120	12	14
Frazier	9.5	69.3	110	-59	May 16	Sept. 20	127	13.48	2,068	15	35
Harve	12.9	68.3	108	-57	May 11	Sept. 22	134	12.31	2,486	40	79
Station avgs.	12.1	68.9	106	-50	May 19	Sept. 20	124	13.06	2,696	29	34
10 plains station avgs 1/	10.8	69.4	108	-52	May 17	Sept. 20	126	12.42	2,403	33	39

1/ The 10 plains stations averages omit the mountain stations, Clear Creek and Zortman.
Pptn. = precipitation
Compiled from Climatological Data, Montana Annual Summaries, for several calendar years, varying with station records, 1957 and prior; U. S. Department of Commerce, Weather Bureau.

Table 3. - Annual precipitation at seven stations in Milk River Area, Montana, 1910-1958

Year	Chinook	Malta	Glasgow	Opheim	Turner	White Water	Ft. Peck	Avg.
1910		6.32						
1911		18.28						
1912	13.22	17.56	17.90					16.23
1913	11.82	11.19						11.51
1914	14.63	13.42						14.03
1915		16.03	16.73			13.55		15.44
1916		15.72	20.47			16.15		17.45
1917	9.41	8.73	7.83			7.14		8.28
1918	8.01	9.18	11.65			10.44		9.82
1919	9.77	9.18	7.74			9.67		9.09
1920	14.30	16.25	9.67			12.50		13.18
1921	14.75	16.59	16.96			14.29		15.65
1922	12.24	12.41	15.18			13.68		13.38
1923	15.72	16.65	19.37			17.72		17.37
1924	13.99	14.35	18.28			17.55		16.04
1925	15.86	14.34	13.24			14.68		14.53
1926	12.19	11.37	11.74			11.69		11.75
1927	21.45	22.76	20.37			21.41		21.50
1928	11.39	13.55	9.79			12.76		11.87
1929	13.28	13.75	11.60			10.22		12.21
1930	11.81	10.07	8.38	10.79				10.26
1931	9.33	7.12	9.53	5.07				7.76
1932	19.27	17.50	15.08	10.09				15.49
1933	17.78	16.67	14.80	12.44				15.42
1934	11.54	9.03	6.83	5.33				8.18
1935	9.33	8.73	10.02				9.16	9.31
1936	9.69	7.28	7.93	5.39			6.45	7.35
1937	13.03	12.52	7.70	7.89	11.59		7.78	10.08
1938	20.36	18.67	20.85	15.74	17.28		13.08	17.66
1939	12.14	14.12	13.51	12.36	15.13		11.86	13.19
1940		16.21	14.40	13.74	15.65		14.28	14.86
1941	14.19	13.27	12.86	9.97	12.96		13.93	12.86
1942	18.05	15.68	13.39	13.64	17.14		12.33	15.04
1943	12.00	14.08	12.40	11.13	11.70		12.02	12.22
1944	13.76	11.97	14.15	11.19	11.21		13.75	12.67
1945	11.34	10.86	10.82	10.15	9.96		9.11	10.37
1946	9.78	12.46	13.76	11.47	9.91		12.60	11.66
1947	10.91	12.83	15.12	16.03	10.37		12.77	13.01
1948	9.68	10.67	14.24	11.90	12.59		11.35	11.74
1949	9.90	7.58	8.47	7.76	7.20		7.03	7.99
1950	14.04	10.75	19.02	15.38	9.70		12.34	13.54
1951	13.65	11.44	13.28	12.10	15.94		8.66	12.51
1952	7.40	10.02	12.79	11.06	11.15	10.00	7.88	10.04
1953	12.45	14.93	15.33	18.09	12.16	13.40	16.41	14.68
1954	14.79	14.65	16.24	18.47	13.03	15.19	14.36	15.25
1955	15.82	11.89	10.98	11.95	13.83	10.73	9.91	12.16
1956	7.50	7.38	9.06	11.40	9.17	6.77	7.19	8.35
1957	12.41	10.88	10.39	10.83	8.88	9.84	7.82	10.15
1958	9.43	9.17	7.07	7.18	10.33	7.27	7.43	8.27
Long term averages	13.04	12.78	13.04	11.38	12.13	12.58	10.81	12.25
Yrs of record	60	49	45	28	22	22	22	36
Elevation	2,502	2,250	2,092	3,000	2,800	2,316	2,144	2,443

Climatological Data, Montana Annual Summary, 1910-1958, U.S. Department of Commerce, Weather Bureau.

Annual precipitation at seven stations with long periods of record in the area for the 49 years from 1910 through 1958 is given in table 3. This tabulation shows the wide variations among years and stations. Lowest record at any station is 5.07 inches and the highest is 22.76 inches. Extremes of the averages are 7.35 inches in 1936, and 21.50 inches in 1927. This amounts to a variation of minus 40 percent and plus 76 percent of the long-time average of 12.25 inches for the seven stations as tabulated. Extremes for Malta, the high-record station, are 6.32 inches to 22.76 inches. The 49-year average there is 12.78 inches with variations ranging from minus 51 percent to plus 78 percent in the 49 years listed. Range of annual precipitation at the low-record station, Opheim, is 5.07 inches to 18.47 inches. The 28-year average there is 11.38 inches, with variations of minus 55 percent to plus 62 percent. Cyclical droughts, which have ruined production, caused emigration, and disrupted economy in the area, show in the low amounts of precipitation in the periods 1917-1919 and 1934-1936. Single dry years were 1931, 1949, 1956, and 1958.

Amounts of annual precipitation at seven stations in the area are compared with long-time average amounts for a six-year period, 1952-1957, in table 4. Differences in the amount of precipitation between the odd and even years in this period are also shown in inches and as percent of the average. Comparisons between 1952 and 1953 are especially marked, as 1952 was a "dry" year and 1953 experienced above normal precipitation at all of the stations. Statistics in table 4 emphasize the variations in production potential for range forage and non-irrigated crops. Percentile variations given in table 4 sharply show the differences in potentials for production in different parts of the area in any one year as well as variations between years. Any statistics or records of precipitation do not tell the whole story of production potential. Efficiency of moisture supply is a large factor. Some years heavy rains come too late to be effective. In other years, just a little rain at the right times will keep range forage and crops growing vigorously. This is one of the reasons that sometimes there is little direct correlation between annual precipitation and crop yield figures. Modern conservation practices, large-scale power tools, and adapted varieties permit good crop production under conditions which would spell failure without them. Usually annual precipitation is a good measure of production potential. Rain in the area is as welcome as money in the bank and may mean even more to the area economy and welfare.

Table 4. --Comparisons of annual and long-time average amounts of precipitation for stations in the Milk River Area, Montana, 1952-57

						Variation	
Stations	Precipitation inches	Percent of Avg. percent	Precipitation inches	Percent of Avg. percent	Long Time Avg. inches	Total Variation inches	Percent of Avg. percent
	1952		1953			Variation 1952-1953	
Chinook	7.40	57	12.45	95	13.04	5.05	39
Malta	10.02	78	14.93	117	12.78	4.91	38
Glasgow	12.79	98	15.33	118	13.04	2.54	19
Opheim	11.06	97	18.09	159	11.38	7.03	62
Turner	11.15	92	12.16	100	12.13	1.01	8
White Water	10.00	79	13.40	107	12.58	3.40	27
Ft. Peck	7.88	73	16.41	152	10.81	8.53	79
	1954		1955			Variation 1954-1955	
Chinook	14.79	113	15.82	121	13.04	1.03	8
Malta	14.65	115	11.89	93	12.78	2.76	22
Glasgow	16.24	125	10.98	84	13.04	5.26	40
Opheim	18.47	162	11.95	105	11.38	6.52	57
Turner	13.03	107	13.83	114	12.13	.80	7
White Water	15.19	121	10.73	85	12.58	4.46	35
Ft. Peck	14.36	133	9.91	92	10.81	4.45	41
	1956		1957			Variation 1956-1957	
Chinook	7.50	58	12.41	95	13.04	4.91	38
Malta	7.38	58	10.88	85	12.78	3.50	27
Glasgow	9.06	69	10.39	80	13.04	1.33	10
Opheim	11.40	100	10.83	95	11.38	.57	5
Turner	9.17	76	8.88	73	12.13	.29	2
White Water	6.77	54	9.84	78	12.58	3.07	24
Ft. Peck	7.19	67	7.82	72	10.81	.63	6

Compiled from Climatological Data, Annual Summary, Montana, for the calendar years 1952-1957; Weather Bureau, United States Department of Commerce.

NATURAL RESOURCES

Principal resources of the Area are the dry farm land, the grazing land, and the irrigated farm land. Other important resources are the waters of the Milk River and its tributaries, which arise in areas of higher precipitation; Missouri River water, which has been developed into Fort Peck Lake; timber, and the mineral resources; oil, gas, gold, silver, stone, sand and gravel, coal, bentonite and shale. The rugged badlands, wildlife, fish, wildlife reserves, the recreational resources afforded by Fort Peck Lake, the power produced at Fort Peck Dam, and storage reservoirs on Milk River are also important resources. Location of the area on principal transcontinental, international and interstate rail and highway routes is important economically for marketing, shipping, transportation and tourism.

Marginal precipitation for non-irrigated crop production limits long-term economic sites to lands with good soils and little slope. These lands are mostly north of Milk River. Fifteen percent of the area is used as cropland, 1,343,244 acres. Irrigated cropland is ten percent of the cropland, 138,865 acres. Irrigated lands are on Milk River bottom lands with minor portions on the larger tributaries. Nearly all land that is suitable for crop production is now so utilized. Under present standards not more than five percent of the area could be used for additional cropland, or 455, 281 acres. Some land is now farmed which is only fairly, or even poorly, suited to cropping. Rangelands cover 7,759,752 acres, or 85 percent of the area. Site variations of slope and soil quality cause considerable variations in production of rangeland in the area. Badlands in the Missouri breaks and shale lands elsewhere provide sites with lower production than the more nearly level sites with better soils which are prevalent on the plains upland area. Poor, rough sites, with shale soils and steep slopes, predominate in the southern part of the area. These poor sites are largely vacant public domain landownership, as shown on the five maps with this report. Timber stands are located in the Little Rocky and Bearpaw Mountains, with less valuable stands in the breaks and rough lands. Cottonwood (eastern poplar), ash, and willow grow along the streams.

Rangelands

Rangelands of the area include large areas of badlands in the Missouri River breaks, lands which are nearly badlands, and rolling hills with heavy soils along Beaver, Larb, and Willow Creeks, and undulating plains areas. Principal rangelands in the area were inventoried and mapped as shown on the five Milk River Area maps with this report. Principal area rangelands are within the Area Classification and Game Range parts of the Milk River Area. Most of the rangelands were examined and classified by the ecological site method developed by the Soil Conservation Service of the Department of Agriculture.

Rangeland inventory in the Area Classification part of the area examined rangelands for site, range vegetal cover type, three principal species of plants, range condition, recommended stocking rate and land use capability factors of slope, erosion and major soil characteristics as shown on the five area maps with this report. The Game Range inventory was conducted in a similar manner. Game Range formulas, as shown on maps 4 and 5, show the range type, two principal species and the recommended stocking rate. In addition to the explanation of formulas on the maps, further details are given in this report in Appendix A, which lists the principal rangeland plants of the area with their symbols, common and technical names; Appendix C, Description of land-use capability classes; Appendix D, Range Type Designations; and Appendix E, Guide to Range Sites.

Thirteen Range Sites were found in the Area Classification part of the area. Range Sites fairly uniform in characteristics were mapped out as formula areas as shown on the five area maps. Fourteen range vegetal types were inventoried in the area. Distribution of these range types by number of different formula areas in which they occur as shown on the five area maps is as follows:

Range vegetal type		Number of formula areas with type		
Number	Name	Area Classification	Game Range	Total
1.	Grass	909	37	946
2.	Meadow	3	-	3
4.	Sagebrush	342	37	379
5.	Browse-shrub	4	-	4
6.	Conifer	28	32	60
7 T.	Dense timber	4	-	4
7 W.	Waste	14	-	14
8.	Barren	5	1	6
9.	Juniper	-	6	6
10.	Broad-leaf trees	6	4	10
13.	Saltbush	35	-	35
14.	Greasewood	62	41	103
17.	Half shrub	-	2	2
18.	Annual weeds	12	-	12
Total		1,424	160	1,584

Most of these range formula areas are repeated several times, so there are over 6,000 separate Range Site formula areas which have been delineated in the field as shown on the five area maps.

Vegetal cover of the Milk River Area consists primarily of various types of grassland, with short and mid-grasses typical of the Northern Great Plains predominating. Sagebrush may usually be found on the heavier soils and may be the dominant species in the stream bottoms and flood plains. Several other range cover types occur as listed above. Timber covers the Little Rocky Mountains and much of the Bearpaw Mountains. Timber of a woodland type is frequent in the breaks of the Missouri and on other rough lands. Trees grow along the streams and drainage ways of the area.

Range Sites are described by physical factors, vegetal cover, and land use capability factors of slope, soil and erosion. These sites are often poorly defined on the ground due to very gradual changes in soils, topography, and precipitation. Vegetation on these borderline sites may be quite different from that found on any of the typical sites which are defined in the Technicians' Guide, Appendix E of this report. No attempt has been made to describe the geographical locations where the various sites predominate and it will be necessary to refer to the five maps for this information.

The most widespread and easily defined Range Site in the area is Ordinary Upland. The dominant grasses on this site are blue grama grass (Bouteloua gracilis), bluestem wheatgrass (Agropyron smithi), needleandthread (Stipa comata), Prairie junegrass (Koeleria cristata), threadleaf sedge (Carex filifolia), and Sandberg bluegrass (Poa secunda). Degeneration of Ordinary Upland in condition is generally indicated by a predominance of blue grama grass and invasion of weeds and half shrubs such as fringed sagebrush (Artemisia frigida), broom snakeweed (Gutierrizea sarothrae), plains pricklypear (Opuntia polyacantha) and phlox (Phlox spp.). On the better soils and under moderate grazing, needleandthread and bluestem wheatgrass predominate, and blue grama grass may be excluded almost entirely. Range of this type is particularly common just north of Loring in Phillips County and is the highest grazing capacity upland range to be found in the area.

A wide variety of vegetation is found on Shale sites. Most commonly found are bluestem wheatgrass, green needlegrass (Stipa viridula), prairie sandreed (Calamovilfa longifolia), little bluestem (Andropogon scoparius), dryland sedges (Carex spp.), inland saltgrass (Distichlis stricta), and prairie cordgrass (Spartina pectinata). Common shrubs are wild rose (Rosa spp.), kinnikinnick

(Arctostaphylos uva-ursi), creeping juniper (Juniperus horizontalis), greasewood (Sarcobatus vermiculatus), and silver sagebrush (Artemisia cana). Numerous unpalatable annual and perennial weeds are also found on this site. Despite the variety of vegetation found on Shale sites, the density is very low, and hence the carrying capacity is low.

Saline Lowland sites generally contain very few grasses, but occasionally rather extensive stands of bottlebrush squirreltail (Sitanion hystrix), saltgrass, or alkali sacaton (Sporobolus airoides) occur on these sites. The most common plants are Gardner saltbush (Antriplex gardneri), big sagebrush (Artemisia tridentata), plains pricklypear, greasewood, and numerous unpalatable weeds. The carrying capacity of this site is generally low, except if some good saline tolerant grass is present, when it may be quite high.

The Shallow sites usually contain most of the species found on Ordinary Upland, with blue grama grass, needleandthread, and threadleaf sedge predominating. Plains muhly (Muhlenbergia cuspidata) occurs on this site along with occasional clumps of little bluestem, prairie sandreed, and pricklypear.

Clay sites are usually sagebrush types consisting primarily of big sagebrush and/or silver sage, with an understory of various combinations of bluestem wheatgrass, blue grama grass, inland saltgrass, foxtail barley (Hordeum jubatum), prairie junegrass, alkali sacaton, and needleandthread. Greasewood, pricklypear, and a varied assortment of annual and perennial weeds may also be found on sites classified as Clay.

The vegetation on Scabland corresponds very closely to that found on Ordinary Upland. Blue grama grass is often the dominant species on this site. The blow-out spots are generally entirely bare with the exception of an occasional clump of plains pricklypear, and the total density is much lower than on Ordinary Upland.

Lowland sites are usually brush types mixed with clumps of aspen (Populus tremuloides) and river cottonwood (Populus deltoides). In areas free of brush, nearly pure stands of bluestem wheatgrass with a very high carrying capacity often occur. Native "bluejoint" hay is often harvested from these areas, as well as from the very similar but wetter Wetland sites.

The site, Thin Breaks, is very hard to define in terms of vegetation. Generally, however, shrubs such as mountainmahogany

(Cercocarpus) and most of the species found in Shallow sites grow on this Range Site with a predominance of threadleaf sedge, plains muhly, and prairie sandreed. When found in connection with shale soils it includes most of the species found on Shale sites, but the density is generally somewhat higher, particularly along drainage bottoms.

Very Shallow, Sandy, and Gravel sites were rarely encountered, and no attempt was made to develop a list of plant species which might be considered typical for these sites. In most cases the Badlands sites have little vegetation, but isolated areas, particularly along stream bottoms, may contain most of the species found on Shale sites. The range condition class for nearly all Shale, Shallow, and Thin Breaks sites, as determined by the Technicians' Guide, was found to be either good or excellent. This serves to focus attention on the fact that condition is determined by the quality rather than by the quantity of the vegetation. The more heavily grazed Ordinary Upland and Clay sites were frequently found to be in fair or poor condition.

Field studies of forage production in the area are summarized in table 5, by classes of landownership, within the several divisions of the area; Area Classification portion, Isolated Tract Area, Fort Peck Game Range, all within Malta Grazing District and that part of the area which is outside of Malta Grazing District in Chouteau and Valley Counties. Forage production is also shown as recommended stocking rate in animal unit months per acre in each formula area on the five maps of the Milk River Area with this report. Forage production of each Isolated Tract is shown in table 27 as animal unit months.

Forage production data in table 5 were determined by field studies except within Isolated Tract Classification areas where only public domain and withdrawals therefrom were examined. Forage production of other landownership classes in the Isolated Tract Classification areas was estimated by applying the same forage production rates as were determined for adjacent Area Classification lands in the same landownership class. Private and Land Utilization Project acquired lands produce the most forage, only 4.07 surface acres of rangeland producing an animal unit month of forage on Land Utilization Project land, and 4.42 acres on private land in Malta Grazing District. Vacant public domain and land in withdrawals therefrom average 6.83 acres of land to produce one animal unit month of forage. Relative forage production quality of the several types of landownership in the area is shown graphically in figure 4.

Table 5.--Rangeland forage production in detailed study units of the Milk River Area, Montana, by landownership classes, 1954

	Within Malta Grazing District								
	Area Classification Portion			Isolated Tract Classification 1/			Fort Peck Game Range 2/		
Landownership	Area acres	AUMs	Avg. acres per AUM	Area acres	AUMs	Avg. acres per AUM	Area acres	AUMs	Avg. acres per AUM
Vacant Public Domain	1,547,655	227,375	6.81	90,263	18,469	4.91	324,707	44,036	7.37
Stock Driveway Withdrawal	640	94	6.81						
Public Water Reserve	1,593	198	7.24						
Power Site Withdrawal	8,813	580	15.20	200	36	5.55			
Land Utilization Project acquired lands	561,075	138,025	4.07	353,938	87,069	4.07	3,909	576	6.79
Sub Total-Admin. by BLM	2,119,776	366,272	5.79	444,401	105,574	4.21	328,616	44,612	7.37
Reclamation Withdrawal	35,901	7,759	4.63	13,782	2,979	4.63			
Indian Allotment	19,872	4,980	3.99	60,413	15,141	3.99			
Military Purchase	478	90	5.33	3,197	599	5.33	27,528	2,453	11.22
Sub Total - All Federal Land	2,176,027	379,101	5.74	521,793	124,293	4.20	356,144	47,065	7.57
State Land	228,424	45,992	4.97	309,790	62,374	4.97	15,631	1,618	9.66
Private Land	1,292,777	298,849	4.33	1,423,283	329,018	4.33	21,041	2,663	7.90
TotalRangeland in M-1 District	3,697,228	723,942	5.11	2,254,866	515,685	4.37	392,816	51,346	7.65
	Rangeland outside of Malta Grazing District								
	In Chouteau County						In Valley County - Isolated Tract		
Vacant Public Domain	29,248	2,747	10.65	5,692	964	5.90	2,346	622	3.77
Power Site Withdrawal	5,877	395	14.88	178	14	12.71			
Land Utilization Project acquired lands							5,638	1,387	4.06
Sub Total - Admin. by BLM	35,125	3,142	11.32	5,870	978	6.00	7,984	2,009	3.97
Indian Allotment							3,784	948	3.99
Sub Total - All Federal Land	35,125	3,142	11.32	5,870	978	6.00	11,768	2,957	3.98
State Land	4,707	526	8.95	31,451	3,515	8.95	34,908	7,028	4.97
Private Land	60,102	11,104	5.41	207,767	38,385	5.41	68,524	15,841	4.33
Total Rangeland outside of M-1 District	99,934	14,772	6.77	245,088	42,878	5.72	115,200	25,826	4.46
Grand Total Rangeland	3,797,162	738,714	5.14	2,499,954	558,563	4.48	508,016	77,172	6.58
Total Rangeland of Milk River Area except Indian Reservations							6,805,132	1,374,449	4.95

1/ Vacant public domain and withdrawals are the only classes of landownership which were examined in the Isolated Tract Areas. Forage production for the other types of landownership has been estimated by using the average AUMs determined for each class by using the average AUMs determined for each class in the adjacent area classification portion.

2/ Animal Unit Months in Fort Peck Game Range include 12,798 AUMs on Vacant Public Domain which are reserved for game use.

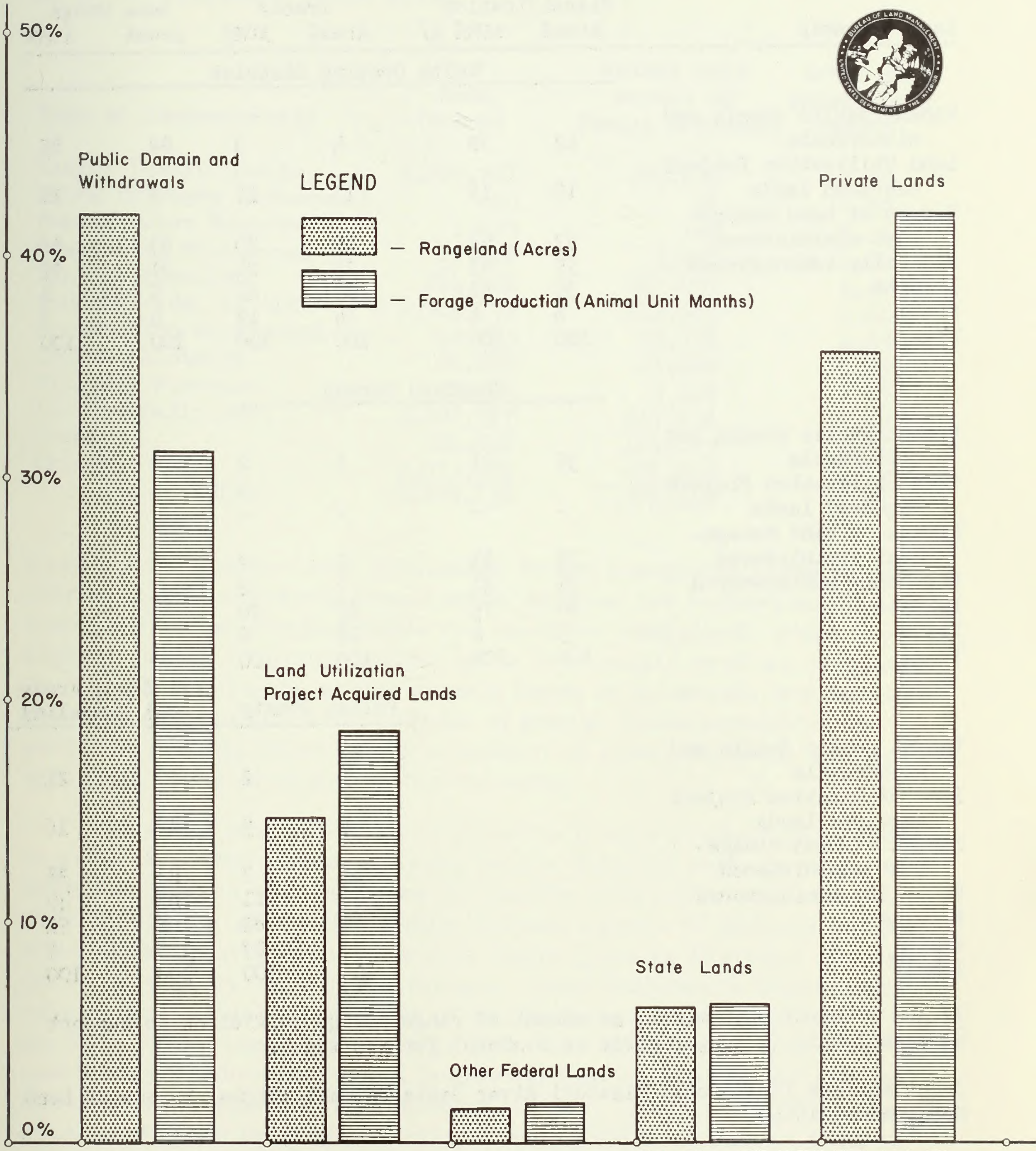
AUM = Animal Unit Month, an amount of range forage sufficient to support an animal unit (1 cow, 1 horse or 5 sheep) for one month.

This table is for the rangeland area within Milk River Area. This table does not include 1,343,244 acres of cropland in the area, Indian Reservations or Federal Reserves.

Compiled from field inventories of the Bureau of Land Management, 1953 - 1954. Game Range data was compiled from the joint study by Bureau of Land Management and the Fish and Wildlife Service, 1952-1953.

FIGURE 4

RELATIVE AREA AND FORAGE PRODUCTION BY LANDOWNERSHIP CLASSES IN THE AREA CLASSIFICATION PORTION OF THE MILK RIVER AREA, MONTANA, 1954



B.L.M., AREA 3, DENVER DRAFTING OFFICE J.L.K. 1959

Table 6.--Percentile amounts of rangeland area and forage production by landownership classes in detail study areas of the Milk River Area, Montana, 1954

Landownership	Area Classification		Isolated Tracts		Fort Peck Game Range	
	Area%	AUM% 1/	Area%	AUM%	Area%	AUM%
	Malta Grazing District					
Vacant public domain and withdrawals	42	32	4	3	82	85
Land Utilization Project acquired lands	15	19	15	17	9	11
Bureau of Land Management administered	57	51	19	20	83	86
Federally administered	59	53	23	24	91	92
Private	35	41	63	64	5	4
State	6	6	14	12	4	3
Total	100	100	100	100	100	100
	Chouteau County					
Vacant public domain and withdrawals	35	21	2	2		
Land Utilization Project acquired lands	-	-	-	-		
Bureau of Land Management administered	35	21	2	2		
Federally administered	35	21	2	2		
Private	60	75	85	90		
State	5	4	13	8		
Total	100	100	100	100		
			Valley County		All Study Areas Total Rangeland	
Vacant public domain and withdrawals			2	2	29	21
Land Utilization Project acquired lands			4	5	13	16
Bureau of Land Management administered			6	7	43	38
Federally administered			10	11	46	40
Private			60	62	45	51
State			30	27	9	9
Total			100	100	100	100

1/ AUM = Animal unit month, an amount of range forage sufficient to support an animal unit (1 cow, 1 horse or 5 sheep) for one month.

Compiled from field work, Missouri River Basin Investigations, Bureau of Land Management, 1954.

Relative forage producing quality of the various landownerships on rangeland as inventoried in the Milk River Area is shown by the following figures, which are a summarization of table 5 for all of the rangeland in the area:

Type of landownership	Area (acres)	Animal unit months of forage produced	Acres per animal unit month
Vacant Public Domain	1,999,911	294,213	6.80
Stock Driveway Withdrawal	640	94	6.80
Public Water Reserve	1,593	198	8.04
Power Site Withdrawal	15,068	1,025	14.70
Land Utilization	924,560	227,057	4.07
Subtotal-Adm. by BLM	2,941,772	522,587	5.62
Reclamation Withdrawal	49,683	10,738	4.63
Indian Allotment	84,069	21,069	3.99
Military Purchase	31,203	3,142	9.93
All Federally Adm.	3,106,727	557,536	5.57
State	624,911	121,053	5.16
Private	3,073,494	695,860	4.42
TOTAL	6,805,132	1,374,449	4.95

Feed production on Land Utilization Project acquired lands is superior to that of privately owned lands because the highest quality Land Utilization Project lands are used for rangeland, while the highest quality privately owned lands are usually used as cropland. Forage production on public domain lands is relatively low because these lands represent the residue of poorer lands remaining in public ownership after nearly a century of land selection, homesteading, and settlement within the area.

Relative amounts and comparative forage production of lands in several landownership classes within detailed study areas of the Milk River Area are shown by percentile distribution in table 6. This tabulation shows that public domain covers 42 percent of the Area Classification section within Malta Grazing District, but produces only 32 percent of the forage. Land Utilization Project acquired lands cover 15 percent of this division of the area and produce 19 percent of the forage. Similar comparisons of area and forage production for all landownership classes in the six detailed study areas are presented in table 6. Area and forage production of lands by landownership classes within the Area Classification portion of the Milk River Area are compared in figure 4.

Permitted livestock numbers by class for Malta Grazing District for the fiscal years 1943-1954 are shown in table 7.

Table 7. --Permitted livestock numbers and estimated carrying capacity on grazing lands administered by Malta Grazing District, Bureau of Land Management, Milk River Area, Montana, 1954

	Cattle		Horses		Sheep		Mule Deer		Whitetail Deer	
Fiscal Year	no.	AUMs	no.	AUMs	no.	AUMs	no.	AUMs	no.	AUMs
1943	44,753	152,490	3,724	15,948	210,297	120,208			1,000	3,640
1944	51,744	221,774	3,256	21,078	217,274	116,559			1,350	5,034
1945	54,815	239,584	2,973	18,941	219,001	117,675	500	1,865	1,000	3,730
1946	60,250	284,550	2,105	10,358	179,857	109,811	550	2,052	1,100	4,103
1947	60,325	284,678	2,126	10,382	181,857	110,244	605	2,257	1,309	4,519
1948	59,819	289,854	2,282	14,807	155,106	96,069	605	2,257	1,309	4,519
1949	78,144	182,396	2,377	5,851	124,695	31,776	4,400	13,500	1,100	2,700
1950	84,238	167,110	3,328	35,000	170,343	55,000	4,400	13,500	1,100	2,700
1951	83,819	202,163	2,872	12,229	143,632	32,856	4,400	13,500	1,100	2,700
1952	86,826	218,788	2,356	11,532	93,525	27,230	4,800	14,895	1,200	2,900
1953	90,217	226,956	1,777	9,039	93,941	28,069	5,300	16,395	1,300	3,100
1954	93,362	243,108	1,752	5,481	93,294	26,009	5,200	16,100	1,250	3,000
	Elk		Antelope		Total Domestic Livestock		Total All Game Grazed		Total All Livestock &Game	
1943			1,700	4,080	90,536	288,646	900	7,720	91,436	296,366
1944			2,300	5,520	98,454	359,411	1,217	10,554	99,671	369,965
1945			2,700	6,480	101,588	376,200	1,400	12,075	102,988	388,275
1946			2,970	7,128	98,326	404,719	1,540	13,283	99,866	418,002
1947			3,267	7,841	98,822	405,304	1,727	14,617	100,549	419,921
1948			3,267	7,841	93,122	400,730	1,727	14,617	94,849	415,347
1949			4,000	6,580	105,460	220,023	3,700	22,780	109,160	242,803
1950			3,500	5,520	121,634	257,110	3,000	21,720	124,634	278,830
1951	184	175	8,500	6,587	115,417	247,248	4,789	23,002	120,206	270,250
1952	230	2,410	9,000	7,100	107,887	257,550	5,153	27,305	113,040	284,855
1953	300	3,150	9,500	7,300	110,782	264,064	5,516	29,945	116,298	294,009
1954	315	3,300	10,000	7,600	113,772	274,598	5,640	30,000	119,412	304,598

AUM=Animal Unit Month, an amount of range forage sufficient to support an animal unit (1 cow, 1 horse or 5 sheep) for one month.

AUM figures for livestock for years 1943-1948 include approximately 50% use on Land Utilization Project acquired lands.

Compiled from annual grazing statistical reports - M 1 Grazing District. Data on domestic livestock is permitted use. Data on game are estimated. Numbers (no.) in the three Total columns are animal units. Game animal units are: 3 deer or antelope are one animal unit, 1 elk is one animal unit.

Big game grazing use allowed and the estimated carrying capacity of Federal rangeland for domestic livestock and big game are also shown.

Estimated carrying capacity in animal unit months on public domain lands within Malta Grazing District for both livestock and big game during the years 1943 to 1959 is as follows:

Date	For livestock	For big game	Total
1943	325,000	25,000	350,000
1944	360,000	25,000	385,000
1945	377,740	15,000	392,740
1946	434,401	16,501	450,902
1947	432,014	18,150	450,164
1948	432,014	18,150	450,164
1949	273,599	40,100	313,699
1950	285,699	28,000	313,699
1951	283,674	30,000	313,674
1952	279,536	30,000	309,536
1953	280,115	35,000	315,115
1954	280,624	35,000	315,624
1955	246,631	30,000	276,631
1956	252,685	30,000	282,685
1957	257,685	24,667	282,352
1958	259,043	15,000	274,043
1959	260,000	15,000	295,000

Rangeland is the only use type of land which has been considered for forage production. Cropland also produces a large amount of forage, especially the irrigated hay land. Much of the cropland is operated in conjunction with livestock, the crops or crop residues being used for livestock. There are 1,343,244 acres of cropland which is 15 percent of the area. Most of the cropland is in the Isolated Tract Classification portions of the area. The irrigated cropland is largely located along the Milk River Valley and is mostly in the Milk River Irrigation Project of the Bureau of Reclamation. Forage production of cropland in the area could exceed 4,029,732 animal unit months, based on the low rate of three animal unit months per acre. Present cropland use exceeds 25 percent for forage, with over 65 percent of irrigated land being used for forage production. In 1957, there were 804,730 acres harvested for crops, mostly small grains, principally wheat.

Crops largely used for forage, and sugar beets, the tops of which are valuable forage, produced in 1957 are as follows:

Crop	Acres	Percent of total area harvested
Hayland cut	164,400	20.43
Corn for forage	7,700	.96
Sugar beets	4,540	.56
Oats	19,800	2.46
Total	196,440	24.41

Irrigated land use in the area for crops of forage value in 1954 was as follows:

Crop	Acres	Percent of total area harvested
Hayland cut	71,865	60.86
Sugar beets	4,534	3.84
Oats	5,229	4.43
Corn for forage	631	.53
Four listed crops	82,259	69.66
All crops	118,084	100.00

Forest Lands

Best timber stands in the area are located in the Little Rocky Mountains, especially within the Lewis and Clark National Forest and that part of the Fort Belknap Indian Reservation immediately adjoining this national forest. Lodgepole pine and Douglas fir grow at the higher elevations and Ponderosa pine is found on the lower slopes. Elsewhere timber grows in open woodland stands on areas of broken topography or along streams and drainage ways. Timber stands on the rough lands usually have fair reproduction stands with fair growth until trees reach pole size, when moisture becomes a severely limiting factor on most sites. Mature trees grow so slowly that few become large enough for saw timber on rough broken land sites. Cottonwood and American elm grow along the Milk River.

The Little Rocky Mountains are over 50 percent forested. Part of the Bearpaw Mountains in southern Blaine County is 25 to 49 percent forested with an equal amount of adjacent area 5 to 24 percent forested. Some of the Missouri River breaks have sufficient tree cover to be in the 5 to 24 percent class, particularly along the Phillips-Valley County line. Here the woodland type stand is RockyMountain juniper and Ponderosa pine. The Fort Peck Game Range is located in the Missouri River breaks. The maps of this part of the area show considerable amounts of type 6, Conifer woodland, with Ponderosa pine as the principal species. There are 32 formulas in type 6 within the Game Range. There are six formulas in type 6, Juniper, with RockyMountain juniper as the principal plant species.

Northern Rocky Mountain Forest and Range Experiment Station, Missoula, Montana, reported in 1949 on forest resources of the area. The publication is titled "Montana Forest Resource and Industry Statistics," by P. D. Kemp and M. B. Dickerman, Station Paper No. 25, October, 1950. Data have been taken from tables 16 and 17. Forest land area in the three counties of the area is reported as follows:

	Forest land acres				Percent of total land area in forest land
	Commercial	Non-commercial and reserved	Total	Total land area (acres)	
Blaine	80,872	6,528	87,400	2,700,658	3.2
Phillips	26,559	2,539	29,098	3,317,556	.9
Valley	14,300	-	14,300	3,153,470	.5
Total	121,731	9,067	130,798	9,171,684	1.4

Timber volume on commercial forest land in the three counties in the area was reported as follows:

County	Live saw timber M board feet	Live all timber M cubic feet
Blaine	60,835	26,570
Phillips	31,562	16,361
Valley	45,849	11,367
Total	138,246	54,298

In this list, live saw timber includes trees 11 inches and larger in diameter as measured by International ($\frac{1}{4}$) inch rule. Live all timber is the volume, excluding bark, of sawed trees and the sound volume of cull trees from one-foot stump to four-inch top diameter, including sawed volume of limbs for hardwoods to four-inch top diameter.

Cropland

Irrigated Farm Lands

Irrigation in the area is virtually restricted to the Milk River Valley and its larger tributaries. Most of the irrigated land is within the Milk River Irrigation Project of the Bureau of Reclamation. Irrigation was developed in the area to provide hay for livestock feed during the winter months. Simple diversions were used to turn water onto native "bluejoint" (bluestem wheatgrass) meadows. Irrigated lands along Peoples Creek in the Fort Belknap Indian Reservation are still used for this purpose, as are considerable areas in the Milk River Valley. There are 138,865 acres of irrigable land in the Milk River Area, most of it being located in Milk River Irrigation Project. This is one and one-half percent of the area and ten percent of the cropland.

Production of river bottom hay meadows prior to irrigation development was dependent upon natural flooding which usually occurred twice a year. Melting prairie snow late in March or early in April produces the first flood, and the second, late in May or early in June, is produced by melting snow in the mountains and from snow in timbered areas on high divides. Flooding is effective for hay production only on the Milk River and tributaries with large volumes of flood water; Red Rock Coulee, Lodge, Battle, Thirty Mile, Assinniboine, Whitewater, Frenchman, Rock, Clear, Snake, Peoples, Beaver, and Larb Creeks. Shortage or lack of flood waters to soak the meadowlands led to development of the first irrigation in the area. Stockmen who wanted to assure hay production on lowland meadows independently of flood conditions made simple diversions to carry stream water to these meadows after the severe winter of 1886-87, which caused heavy livestock losses. Small developments irrigating natural hay meadows are an important part of the irrigated lands in the area today. Settlement of irrigated lands for irrigation farming enterprises in the area began with completion of the Harlem and Paradise Canals on Milk River in 1895. Other private projects were developed later. Milk River Project of the Bureau of Reclamation was started in 1902.

Milk River Project of the Bureau of Reclamation has irrigated land extending from Lohman on the west to Nashua on the east. Irrigated lands are largely on the south side of the Milk River, except in the vicinity of Chinook, Harlem, and Dodson, where development is on both sides of the river. The project includes 134,062 acres of irrigable land with six Irrigation Districts: Alfalfa, Dodson, Fort Belknap, Glasgow, Harlem and Malta. Two large storage reservoirs supply water to the project: Fresno Reservoir, 20 miles west of the area, and Nelson Reservoir, near Bowdoin. Average crop value per irrigated acre was $51.26 in 1957, and $50.21 in 1956. Principal crops raised in recent years are as follows:

Crops	1956 acres	1957 acres
Cereal grains	17,430	17,341
Hay, pasture and other forage	49,649	53,346
Sugar beets	4,082	4,512

Milk River Project has an unusual problem. Muskrat and beaver cause excessive damage to the banks of irrigation canals on the project, and it has been necessary to control these animals.

Two new pump irrigation projects are planned for the Milk River Area by the Bureau of Reclamation. Glasgow Bench unit will provide water from Fort Peck Lake on 59,400 acres. Saco Divide unit will irrigate 9,400 acres. Both units are scheduled for initial construction after fiscal year 1965.

Non-irrigated Farm Lands

Cropland in the area covers 1,343,244 acres, which is 15 percent of the area. Less than two percent of the area is irrigable, 138,865 acres. Dry-farmed land area is 1,204,379 acres. Most of the land in the area is too rough for tillage, being suitable only for grazing, watershed, and wildlife. The area is marginal climatically for non-irrigated crop production, and many of the cropland sites are marginal as regards soil or slope conditions. Large areas of reasonably level land with good soil are located in the part of Valley County outside of Malta Grazing District just north of the Fort Peck Indian Reservation as shown on map 5 with this report. Second largest area of good cropland is in northern Blaine County around Turner and Hogeland. Other areas of cropland are around Lloyd and Cleveland in Blaine County; in the western part of the portion of Chouteau County in the area; around Glasgow in Valley County; north of Dodson in Phillips County, and north of Saco in both Phillips and Valley Counties. Cropland is scattered all over the balance of the area wherever soil and slope permit economic units of farming land to be developed. Small areas of upland are used for dry hayland and many "stringers" of meadowland along creeks are cut for hay. Heavy soil or salinity restrict many sites in the area to the production of native "bluejoint" (bluestem wheatgrass) hay. This is particularly true of bottomland sites, many of which are irrigated or sub-irrigated.

Time, amount, and efficiency of precipitation largely determine the amount of production on farm and range land in the area. Continued drought affects land use, residence, immigration, and emigration in the area. Severe winters and dry years in the 1880's and early 1900's convinced livestock operators that hay should be provided for winter feed and led to irrigation of hay land as early as 1890. The severe winter of 1907 reduced flocks and herds and helped to increase settlement and use of farmlands, especially irrigated lands. Climate again affected land use and residence in 1917, when three years of drought and a severe winter in 1919 caused an economic depression in the area for farmers and stockmen alike. Area in crops was greatly reduced and mortgage companies took over much of the land. Recovery was slow during the 1920's. In the thirties, drought and low prices brought disaster and distress to the area. Large areas of cropland were abandoned, people emigrated and relief became necessary. At this time 924,560 acres of land in the area were purchased by the Federal Government for conservation and relief purposes. This land was grouped into Land Utilization Projects. Much of this land had been used for crop production.

The dry and "dirty" thirties left much of the area in county ownership for taxes, and more in the hands of mortgage holders. During the early forties this land was sold by the counties for fifty cents per acre. Liberal precipitation and good prices in the forties and fifties steadily increased the area of cultivated land until more than ever before was under the plow in 1959. As long as the natural and economic climates are favorable, it seems to be inexorable that land use for cropland will increase in the area unless some type of proper use and conservation control is invoked.

Land within the Area Classification portion of the area was examined and classified by Land Use Capability Classes as shown in Appendix C. This capability classification is shown for each distinct formula area of the Area Classification portion on the five maps with this report. Land Use Capability of the Area Classification portion of the area is summarized in table 8.

Wildlife

The Milk River Area includes a wide variety of habitat types and much wildlife. Big game, upland game birds, migratory wildfowl, and songbirds are very abundant. Fur bearers are found in

Table 8.--Land Use Capability by major landownership classes in the Area Classification portion of the Milk River Area, Montana, 1954

Land use capability class	Vacant public domain and withdrawals	Land utilization acquired lands	B. L. M. administered lands	Reclamation withdrawal	Other land-ownerships	Other
Cropland:						
I, II, III	-	12,379	12,379	2,941	204,825	220,145
IV	57,589	147,035	204,624	16,588	336,061	557,273
V, VI, VII	1,477,241	401,271	1,878,512	15,892	1,272,294	3,166,698
VIII	59,655	390	60,045	3,468	15,586	79,099
Total rangeland	1,534,830	548,306	2,083,136	32,480	1,608,355	3,728,971
Total	1,594,485	561,075	2,155,560	38,889	1,828,766	4,023,215

Rangeland is considered to be Capability Classes V, VI and VII.
Land Use Capability Classes are described in Appendix C.

Compiled from field studies of the Bureau of Land Management in 1953 and 1954.

smaller numbers. Probably the most important type of wildlife in the area is migratory waterfowl. The large number of potholes and reservoirs provide breeding areas for a large population of ducks and geese. The study area lies across the Central Flyway, one of the four main migration routes for waterfowl in the United States. While the number of these birds is unknown, the fact that 2,000 geese and 45,000 ducks and other waterfowl were produced on the Bowdoin Wildlife Refuge in 1952 is indicative. Peak concentration of waterfowl on this refuge for the same year was estimated at 450,000 birds. Whistling swans, white pelicans, American coots, and shorebirds are among other water-loving birds found in the area, especially in the vicinity of Fort Peck Lake and the three smaller wildlife refuges: Bowdoin, Black Coulee, and Hewitt Lake Migratory Waterfowl Refuge.

Big game, principally pronghorn antelope and mule deer, is common in the area. The former species has increased markedly, from an estimated herd of 4,000 animals in 1949 to one of 10,000 in 1954. Many antelope in excess of the above figure may migrate seasonally to and from Canada. Antelope are most prevalent on the plains areas from the Missouri River north to the Canadian boundary. Mule deer are found throughout the area, but particularly in the Missouri breaks area. Here, also, are the only elk in the area. Big game populations, as estimated by the Manager of the Malta Grazing District for the year of 1954, include 5,200 mule deer, 1,250 white-tailed deer, 10,000 pronghorn antelope, and 315 elk.

Upland game species include ring-necked pheasant, sage grouse, sharptailed grouse, Hungarian partidges, and cottontail rabbits. The introduced pheasants and partridges are generally found in the vicinity of cultivation, the former being largely restricted to the immediate valley of Milk River and the larger tributaries. The native grouse are found in the sage-grass upland areas. The Cottontail rabbit is generally found in brushy areas, especially along the valley floors.

Among the fur bearers found in the area are skunk, weasel, badger, jack rabbit, beaver, and muskrat. The latter two animals have economic significance, both from the standpoint of providing revenue and from the negative value due to damage to irrigation works. Jack rabbits, prairie dogs, and other rodents are not sufficiently numerous to be considered a serious problem at present. Predators, other than hawks, owls, and eagles, are rather rare in the Milk River Area. During the course of the field investigations less than a half dozen coyotes were observed. Chief predator at present is probably the bobcat.

The waters of the Milk River Area contain large numbers of fish. Among game fish found in the Milk and Missouri Rivers are channel catfish, northern pike, and walleyed pike. The latter is the most important species. Largemouthed black bass and rainbow trout, in addition to the species previously mentioned, are found in Nelson Reservoir. The Fort Peck Reservoir is said to contain over thirty species of fish. These include brown and loch leven trout, as well as the species referred to above. The small live streams arising in the Bearpaw Mountains, particularly Clear and Peoples Creeks, contain rainbow and eastern brook trout. Bass are found in many of the stockwater reservoirs throughout the area. Panfish found in the rivers and in Fort Peck Reservoir include sunfish, crappies, yellow perch, and bullheads. Rough fish have become a problem in some waters, especially in Nelson and Fort Peck Reservoirs. These include carp, suckers, chubs, and goldeyes.

Minerals

Mineral production in the Milk River Basin is of minor importance in the present economy of the area. Mineral resources occurring in the basin within public domain lands include gas, oil, coal, bentonite, clay, sand, gravel, expandable shales and shale and limestone suitable for cement production. However, only gas and oil had any significant production during 1958. For ease of consideration, the minerals are classed as leasable minerals, locatable minerals, and mineral materials.

Leasable Minerals

The leasable minerals include lignite, coal, oil, gas, and all minerals within acquired lands, of which there are approximately 923,000 acres in the basin. The Act of February 25, 1920 (41 Stat. 437; 30 U. S. C. 181) as amended and supplemented, provides for the leasing of oil and gas, coal, potassium, sodium, phosphate, and oil shale, and lands containing such deposits owned by the United States in the public domain. The Act of August 7, 1947 (61 Stat. 913; 30 U. S. C. 351-359) as amended and supplemented, authorizes the Secretary of the Interior to issue permits and leases for deposits of oil, gas, oil shale, coal, phosphate, sodium and potassium in lands acquired by the United States and the leasing of mineral deposits other than oil, gas, oil shale, coal, phosphate, potassium, sodium and sulphur in certain acquired lands.

There was no recorded production of lignite or coal during 1958, but the sub-bituminous coal reserves are estimated at over 40 million tons, mostly located in the western half of the basin.

Gas and oil are the only minerals having any significant production during 1958. The comparative importance of this production is shown by the fact that the royalty and rental receipts of the Bureau of Land Management under the Mineral Leasing Acts for the Milk River Basin only in 1958 totaled $242,058.07. The producing gas and oil royalties alone totaled $24,069.29, all of which was received from Blaine, Phillips, and Valley Counties. The non-producing gas and oil rentals totaled $217,988.78, most of which came from Blaine, Phillips, and Valley Counties. Practically all of the gas was produced from the Bowdoin and Bowes fields and only the Bowes field produced oil. Development interest in the area may be judged from the 1958 activity when only 5 wells were completed, 2 wells in Phillips County and 3 wells in Valley County. All 5 wells were dry holes and abandoned.

Locatable Minerals

The known locatable minerals include gold, silver, lead, zinc, copper and bentonite. The metallic minerals are restricted to small deposits and showings in the Little Rocky Mountains and the Bearpaw Mountains. There has been no real production from the Bearpaw district and no recent significant production from the Little Rockies. There was no recorded bentonite production during 1958, but it is reported that approximately 150 claims for bentonite were located. So, some interest in the bentonite appears to be developing.

Mineral Materials

The demand for mineral materials such as building stone, sand, gravel, clay, etc. in the basin consists of local requirements and the possibility of any appreciable change in this demand appears remote at this time. Sand and gravel were produced in all four counties of the basin during 1957 and 1958, with the greatest production in Valley County. The basin also contains deposits of clay suitable for brick and tile; shale and limestone suitable for cement manufacture; and expandable shales suitable for lightweight aggregate manufacture. Because there is no appreciable demand for these mineral materials, the deposits are only of very minor importance at this time.

Management and disposal activities within the Milk River Basin are not likely to be affected appreciably by mineral development.

Minor local demands for sand and gravel, and possibly clay, can be expected. Adequate classification for the leasable minerals is being made by the United States Geological Survey; consequently, land use or disposal conflicts will be minor.

Water Resources

Streamflows in the area are quite erratic, as little of the flow comes from areas of high runoff. Timbered watersheds and high elevation snow packs which would produce good summer flow make up little of the Milk River watershed. It is necessary to store flood water to properly provide for irrigation on the Milk River. Fresno Reservoir stores 127,200 acre-feet just west of the area and Nelson Reservoir, north of Bowdoin, stores 66,795 acre-feet for irrigation on the Milk River Project of the Bureau of Reclamation. Sherburne Lake Reservoir, on the headwaters of St. Marys River, is located high in the Rocky Mountains, 189 miles west of the area. This reservoir stores 66,000 acre-feet of water which is carried through a 29-mile canal across Hudson's Bay Divide to Milk River drainage. This trans-divide water flows 216 miles through Canada before returning to the United States. St. Marys River water from the United States drainage is thus diverted to provide irrigation water for the Milk River Project.

Many Milk River and Missouri River tributaries in the area are entirely dry during the greater part of the year. A number of streams rising in the mountains or in Canada are considered to be more or less permanent, and are so shown on the accompanying maps. During the summer months many of these drainages contain water only in scattered depressions. Very little water flows anywhere in the basin during the winter months, and even the Milk River sometimes ceases to flow for short periods. The available figures on streamflow indicate that a fairly large amount of water is produced in the Milk River Basin. Nearly all of this runoff occurs during the late March and early April spring snow melts on the prairies and during the spring rains in late May and early June, which usually produce flood flows. This spring runoff is counted on to fill the reservoirs which are the main source of livestock water for large portions of the basin. The Milk River has two flood flows at these times, the second being augmented by melting snow in the mountains and on the higher timbered divides.

Stream-gaging stations of the U. S. Geological Survey have been established at several points on the Milk and Missouri Rivers in and near the area. There are also gaging stations along the Canadian boundary on all of the major tributaries from Canada. Table 9 summarizes the gaging station records of most importance to the area.

Table 9. --Stream flows pertaining to the Milk River Area, Montana, record years to 1954

Gaging Station Location	Drainage Area	Area Irrigated	Max. Flow	Min. Flow	Average Annual Flow	Record Period Years
	sq. mi.	acres	cfs	cfs	ac. feet	
Missouri River Gaging Stations:						
at Pwr. Plant Ferry	40,600	850,000	137,000	1,120	6,097,000	21
below Ft. Peck Dam	57,800	860,000	51,000	1/	7,406,000	21
at Ft. Benton	24,600	730,000	140,000	320	5,528,000	65
near Wolf Point	83,200	1,000,000	66,800	320	8,072,000	27
Milk River Gaging Stations:						
at Nashua	23,300	140,000	45,300	4.6	579,900	16
at Havre		6,000	20,000	no flow	243,300	25
eastern crossing 2/	2,514	some	9,530	no flow	3/268,120	46
Milk River Tributary Gaging Stations:						
North Fork 2/	101	some	2,170	no flow	3/135,400	46
South Fork 2/	433	some	4,750	no flow	3/70,130	
Milk River at Alberta	1,104	some	7,460	no flow	217,200	39
Battle Creek 2/	726	some	5,820	no flow	3/95,350	38
Frenchman Creek 2/	2,020	some	22,700	no flow	3/170,500	38
Peoples Creek near Dodson	720	700	30	no flow	3/47,484	42
Willow Creek near Glasgow	536	3,460	3,280	no flow	3/54,140	2

1/ Minimum flow is given as a gage reading of .38 ft.
2/ At Canadian - USA Boundary
3/ Water year October 1 - August 31, 1955 or March 1 - October 31, 1955 in Water Supply Paper #1389.

U.S.G.S. Water Supply Paper, # 1389, 1955, Surface Water Supply of Missouri River Basin above Sioux City, Iowa.

All the averages are for the period 1939-1950, but some of the extremes were recorded either before or after that period.

Little consideration has been given to the surface water in that portion of the report area which drains directly into the Missouri River south of the Milk River drainage. This area is deeply dissected by numerous intermittent drainages, a few of which may be considered permanent streams. There are no figures available for computing the volume of runoff contributed by these drainages. Because of the low porosity of the shale soils prevalent in this part of the area and the relatively sparse vegetal cover, a high proportion of water falling on this area flows into the Missouri River.

Fort Peck Reservoir, fourth largest in the world, on the Missouri River south of Glasgow, provides storage for 19,412,000 acre-feet of water. Primary purposes of this reservoir are to store excess flow during flood periods and release storage during minimum flow periods; and also to provide water for irrigation and hydroelectric power. When filled to capacity, the Fort Peck Reservoir is 140 miles long, has a clear width of 16 miles, a maximum depth of 220 feet, and a maximum shoreline of 1,600 miles. Fort Peck Dam, the world's largest hydraulic earth-fill structure, is 250 feet high, 21,026 feet long, and contains 130,527,000 cubic yards of earth, gravel, and rock. It was built by four dredges constructed on the site.

The importance of surface water in the Milk River Area should not be underestimated, in spite of its rather undependable nature. Water collected in small reservoirs provides the majority of livestock water throughout most of the area. During years of average rainfall these existing reservoirs and those which have been proposed can be expected to supply sufficient livestock water. However, during consecutive dry years many of these reservoirs go dry during the summer and stock must be shifted to other areas. Water-spreading systems have been constructed, and others have been proposed to produce forage by retaining runoff water in areas where suitable sites exist. A number of small private reservoirs and diversions provide water for irrigation of hay lands in areas far removed from large irrigation facilities. Water from the Milk River irrigates large areas of bottomlands through extensive irrigation facilities constructed by the Bureau of Reclamation and by irrigation organizations.

In an area where surface water supplies are undependable and usually unavailable during the season when they are most needed, dependable ground water is an extremely valuable resource. Alluvial and artesian ground water resources are rather extensive throughout the report area. Although water from both sources is sometimes too highly mineralized for human consumption, it can usually be used by livestock with no ill effects. Virtually none of the ground water in the area can be used for irrigation because of the high concentration of salts. Artesian water occurs in a pervious stratum which is confined by impervious strata.

The Judith River formation is the main artesian water-bearing horizon in this area. This formation consists of approximately 500 feet of sandstone, sandy shale, and clay, and may contain as many as three or four water-bearing horizons. Large volumes of dependable artesian water can be found in some of the deeper seated formations, but generally these formations are so deep that drilling costs are prohibitive. An example of this deeper water is the 3,180-foot well near Bowdoin Lake which flowed at the rate of 23,000 barrels in 24 hours. The Bearpaw shales overlay the Judith River formation, and over most of south Phillips and south Valley Counties these shales are the bedrock formation. Wells drilled into the Bearpaw shales seldom encounter usable amounts of water, and any water that is found is too highly saline to be used for any usual purpose. The Lance formation lies above the Bearpaw shales, and is found capping the Larb Hills, thirty miles south of Saco. This is a porous formation consisting of 500 to 800 feet of sandstone and shale. Water falling on the Lance formation is readily absorbed, and later appears in springs around the bottom edge. These springs are an important source of water for livestock in the Larb Hills. Water will not flow from wells drilled into the Larb Hills Lance formation, but shallow wells, if not located too near the edge of the formation, can be relied upon to supply sufficient water for ranch use by pumping. It is generally not feasible to drill for artesian water in the Larb Hills of south Valley County because of the great depth of the Judith River sandstones. This formation is a feasible source of water in parts of the badlands there.

Throughout the Sun Prairie Area, 35 miles south of Malta and along Telegraph Creek, water can usually be expected to flow at the surface from wells drilled to 700 or 800 feet. A number of deep wells have been drilled in this area and they are a common source of ranch water. In the area north of Sun Prairie and south of Beaver Creek, water cannot be expected to flow from wells drilled into the Judith River formation because of the higher altitude, but water can be had at the surface by pumping. This is also true of the uplands between Sun Prairie and the headwaters of Second and Fourchette Creeks. Flowing water can be expected from deep wells along the lower valleys of Fourchette, Beauchamp, CK, Grouse, and Rock Creeks. In the area north of the Little Rockies the Judith River formation lies at or near the surface. Water will not flow from wells in this area, but good water can usually be secured by pumping from the Judith River sandstones or from shallow wells in the glacial drift.

Glacial deposits and upland gravel beds are an important source of water over much of the area, particularly in the northern part of the area. In areas where the drift deposits are 50 feet or more thick, water can usually be found in relatively shallow wells which will not become depleted even during extended drought periods. Alluvial or shallow ground water can also be found in shallow wells in the alluvium of nearly all of the larger streams. Unfortunately, this water is often too highly mineralized for use and hence cannot be relied upon as a domestic water source, but is usually suitable for livestock water. Another source of alluvial water is sandstone beds in their outcrop areas. Most of the shallow wells in the outcrop area of the Judith River formation south of Vandalia, Hinsdale, Bowdoin, Malta, and in the area around Dodson, receive water from this source. Water also appears in small springs at the base of the sandstone formations where they are exposed in the valleys north of the Milk River. Alluvial or artesian ground water can be found over the greater portion of the report area. Very little alluvial water is available in south Phillips and south Valley Counties, but artesian water, flowing or pumping, is available over most of this area.

HISTORY OF RESOURCE USE

Exploration

Early exploration of the area is not definite. French-Canadian and part Indian trappers and traders probably penetrated through the area from the Five Villages on the Missouri in North Dakota after 1770. In 1772 Hudson's Bay Company traders had a post in the Five Villages; in 1787 the NorthWest Company and XY Company also established posts. All three were found there by Lewis and Clark when ice stopped their progress up the Missouri on October 26, 1804. They resumed their exploration on April 7, 1805. Their guides were the Shoshone Indian Sacajawea and her French-Canadian husband, Charbonneau. Both guides had previously been in the Milk River country and there is little doubt that other trappers and traders had been in the area before that. Lewis and Clark went up the Missouri on the south of the Milk River Area in May, 1805.

Traders and Trappers

The Missouri and the Milk Rivers were natural routes for the early trappers and traders, Indian and white. Trading posts and steamboats gradually moved up the Missouri. Fort Henry was established at the mouth of the Yellowstone in 1822 and replaced by Fort Union in 1829. In 1832 the Yellowstone arrived here, the first steamer to get that far up the Missouri. American Fur Company built Fort Lewis west of the area near the mouth of the Marias in 1846. This fort was rebuilt and christened Fort Benton in 1850. In that year the El Paso was the first steamboat reaching the mouth of the Milk River on the Missouri. Nine years passed before a steamer reached Fort Benton; the Chippewa arrived July 2, 1859, followed by the Key West a few hours later.

Milk River, the Missouri, and their tributaries in the area were sources of beaver, otter and other skins in the fur-trading days of 1760-1875. The area was good buffalo ground in the hide-hunter days when the monarch of the plains was being exterminated. Early fur movement was eastward via canoe and overland to the Great Lakes by French-Canadian and English trappers and traders. Hudson's Bay, the NorthWest, and XY Companies served the area from a trading post at Fort Mandan, 270 miles southeast of the area, or 417 miles down the Missouri River, from 1772 until 1812. American fur traders began to penetrate the area after the first Lewis and Clark exploration of 1804.

Fort Peck was built as a trading post in 1867 by the firm of Durfee and Peck. This firm owned several steamboats and freighted for traders and the Army. The fort had a log stockade and a staff of 15 to 20 men. The owners sold the post to the Government in 1874. It was used as the Fort Peck Indian Agency until 1879 and then abandoned. Located on the north side of the Missouri, two and one-half miles above the mouth of the Big Dry, this post serviced the trading needs of the area for seven years. Before this, steamboats loaded and discharged cargo at several points in the area at the shipper's request. Wolf Point, 35 miles east of the area on the Missouri, was a large trading post that served the region for many years. Fort Buford, at the mouth of the Yellowstone, 110 miles east of the area, was the first military post to serve the area. Built in 1866, this fort served the area until 1895. Fort Assinniboine was built near Havre, just west of the area, in 1879. This elaborate, two-million dollar, heavily staffed post assured the safety of settlers. Establishment of Fort Peck and Fort Belknap Indian Reservations in 1877 prepared the area for settlement. Unreserved Indian lands were opened for entry in 1887, permitting cattlemen to establish headquarters and develop ranches in the area.

Battleground of the Bear's Paw, 15 miles south of Chinook, is an historical site within the area. Here Chief Joseph, a great military strategist, surrendered to a vastly superior force of the Army after three days of resistance. Chief Joseph National Monument has been established here.

Settlement and Development

Cattlemen moved into the area with the establishment of Fort Belknap and Fort Peck Indian Reservations in 1877. French trappers and Scotch livestock men were the first settlers. Unreserved Indian lands were opened to entry in 1887. The hard winter of that year decimated cattle herds and killed deer and antelope. Stockmen then began to irrigate to produce hay for winter feed. Early in the 1880's, Zortman discovered the Alabama mine in the Little Rockies, which produced $600,000 in gold.

The Great Northern Railway was built across the area in 1887, reaching Havre on September 6th. In 1889 the Marias Pass, lowest across the Rockies, was selected by the engineers surveying the route, and the railroad resumed building westward from Havre and was completed across Montana in 1892. Glasgow started in 1887 as Siding 45 of the Great Northern. Early in the 1890's, Charles Whitcomb discovered the Ruby Gulch mine, two miles north of

Zortman in the Little Rockies. This mine produced three and one-half million dollars' worth of gold. In 1893 Landusky and Orman discovered the August mine on the west side of the Little Rockies, a producer of two million dollars in gold.

Horse raising was a major area enterprise in the early days, 1890-1930. Horses were marketed from Idaho to Saint Louis and eastward. Many horse thieves plagued the area, as horses sold up to $200 per head. Two famous horse thieves operated in the area. The "Pigeon Toed Kid" was shot to death by a faster drawing under-sheriff when he went for his gun on a sheep ranch near Glasgow in 1907. "Bloody Knife" Zeglan operated from Malta to Culbertson. After selling a number of stolen horses, he celebrated in Ambrose, North Dakota, and was shot leaving town. The bad winter of 1906-07 nearly decimated the horse business. World War I created a heavy demand for horses in 1918-1919, and many horses were shipped from this area at good prices. Later motorization of travel, hauling, and farm machinery virtually ended large-scale horse production.

Milk River Area was probably the last large region in the United States to be settled. It was the last prairie land to be broken. Active settlement did not start until 1910. Some dryland homesteads had been encouraged by the Montana Dry Land Experiment Station at Twete, near present Hogeland in northern Blaine County. This station was established in 1906 in the center of a large block of good level cropland.

Land Offices and Settlement

Two local land offices served in the settlement of the Milk River Area by disposal of public domain to homesteaders and other purchasers. Glasgow Land Office was opened on June 1, 1907, and the Havre Land Office, located eight miles west of the area, was opened on July 1, 1910. Both of these offices were closed April 30, 1925, and consolidated with the Great Falls Land Office. This office was closed and consolidated with the Billings Land Office in 1948. Prior to the establishment of the two local land offices, three land offices served the area: Helena, established in 1867; Miles City, established in 1880; Lewistown, established in 1890.

Land offices accept applications for homestead, lease, and sale of Government public domain land. They process applications and entries, finalize them and prepare actions for sale and patent. They issue patents conveying title to the honesteader or purchaser and keep records of all transactions. Data presented for the two local land offices, while accurate chronologically, are only relative area-wise, as the region covered by their operations was considerably larger than the Milk River Area.

Table 10 shows the activity of the two local land offices from the time of their establishment in 1907 until they were closed in 1925. Number of applications and areas entered, perfected and patented are shown for each fiscal year from both Glasgow and Havre Land Offices. Amounts of receipts and the number of cadastral surveys of entire or partial townships approved in each year 1907 to 1925 are also given. All of these data are direct measures, or at least indicative, of settlement activity. The area of original entries, and number of applications, of the Glasgow and Havre Land Offices and the number of cadastral township surveys for the period 1907-1925 are shown graphically in figure 5. This chart clearly shows the relationship and volume of these three measures of settlement activity.

Most of the area was taken up as 160-acre homesteads or 320-acre enlarged homesteads prior to the passage of the Stock Raising Homestead Act, Public Law No. 290, on December 29, 1916. The number of entries under this law, area entered, and receipts for the two local land offices from the passage of the act until the offices were closed on June 30, 1925, are as follows:

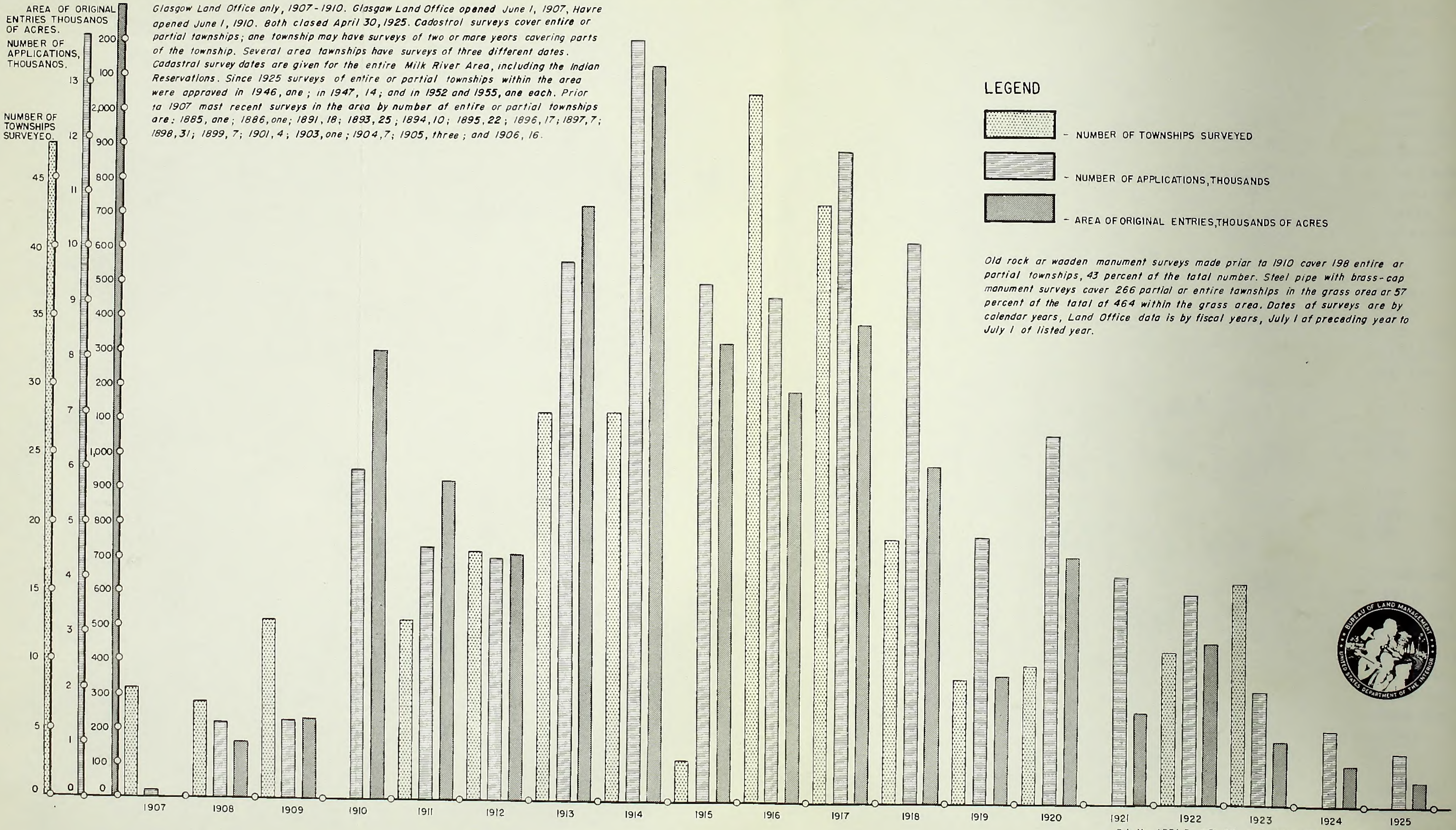
Land Office	No. of entries	Area of entries (acres)	Receipts (dollars)
Glasgow	2,081	659,170	44,739
Havre	1,651	483,454	33,877
Total	3,732	1,142,624	78,616

Largest area of original entries for the two local land offices was recorded in 1914, the second largest in 1913, third in 1915, fourth in 1917, fifth in 1910, and the sixth in 1916. Figures for the Glasgow Land Office alone are probably more representative for the area. Largest area of original entries for the Glasgow Land Office was recorded in 1914 and the second largest was recorded in 1910, when the office covered a much larger area, prior to the establishment of the Havre Land Office. Glasgow Land Office recorded the third largest area of original entries in 1915, the fourth in 1916, fifth in 1918, and sixth in 1917.

Several factors contributed to the timing of settlement of the area. Prior to 1907, the area was utilized for grazing cattle, sheep, and horses. Hay for winter feed was produced under irrigation from simple diversions. Interest in dry farming began in 1906, when a

FIGURE 5

NUMBER AND AREA OF ORIGINAL ENTRIES, GLASGOW AND HAVRE LAND OFFICES, MONTANA, AND NUMBER OF TOWNSHIP CADASTRAL SURVEYS, MILK RIVER AREA, MONTANA, 1907 - 1925



Glasgow Land Office only, 1907 - 1910. Glasgow Land Office opened June 1, 1907, Havre opened June 1, 1910. Both closed April 30, 1925. Cadastral surveys cover entire or partial townships; one township may have surveys of two or more years covering parts of the township. Several area townships have surveys of three different dates. Cadastral survey dates are given for the entire Milk River Area, including the Indian Reservations. Since 1925 surveys of entire or partial townships within the area were approved in 1946, one; in 1947, 14; and in 1952 and 1955, one each. Prior to 1907 most recent surveys in the area by number of entire or partial townships are: 1885, one; 1886, one; 1891, 18; 1893, 25; 1894, 10; 1895, 22; 1896, 17; 1897, 7; 1898, 31; 1899, 7; 1901, 4; 1903, one; 1904, 7; 1905, three; and 1906, 16.

Old rock or wooden monument surveys made prior to 1910 cover 198 entire or partial townships, 43 percent of the total number. Steel pipe with brass-cap monument surveys cover 266 partial or entire townships in the grass area or 57 percent of the total of 464 within the grass area. Dates of surveys are by calendar years, Land Office data is by fiscal years, July 1 of preceding year to July 1 of listed year.

B.L.M., AREA 3, DENVER DRAFTING OFFICE J.L.K. 1959.

Table 10.--Applications, receipts and areas entered, perfected and patented at the Glasgow and Havre Land Offices, Montana, by fiscal years 1907-25

		Totals Both Land Offices							Township Cadastral Surveys
		No. of applications	original entries	No. of applications number	Original entries acres	Entries perfected acres	Patented acres	Receipts dollars	Milk River Area number
1907	Glasgow			136	15,575	465		3,228	8
1908	Glasgow			1,420	159,686			53,050	7
1909	Glasgow			1,463	232,163			52,189	13
1910	Glasgow			5,937	1,296,564			161,168	-
1911	Glasgow			2,065	409,794	63,804	46,900	93,405	
	Havre	4,563	926,084	2,498	516,290	23,044	12,029	75,583	13
1912	Glasgow			1,658	227,656	80,313	82,050	77,686	
	Havre	4,334	700,665	2,676	473,009	46,849	34,247	84,918	18
1913	Glasgow			3,695	561,366	323,520	198,263	76,393	
	Havre	9,772	1,767,139	6,077	1,205,773	118,295	66,152	163,585	28
1914	Glasgow			7,004	1,300,555	584,766	505,380	147,400	
	Havre	13,603	2,121,890	6,599	821,335	623,368	391,403	160,048	28
1915	Glasgow	9,321	1,317,136	4,109	714,515	373,481	541,825	87,595	
	Havre			5,212	602,621	574,207	764,335	204,294	3
1916	Glasgow			4,444	658,907	416,518	393,308	115,770	
	Havre	9,106	1,176,396	4,662	517,489	487,256	485,097	131,380	51
1917	Glasgow			5,232	608,144	616,920	615,629	560,866	
	Havre	11,725	1,307,763	6,493	699,619	685,586	544,616	202,212	43
1918	Glasgow			5,281	631,493	593,534	360,075	161,841	
	Havre	10,080	966,766	4,799	335,273	694,023	533,906	115,757	19
1919	Glasgow			2,672	220,921	395,481	701,131	65,902	
	Havre	4,859	362,274	2,187	141,353	362,538	669,966	65,479	9
1920	Glasgow			3,473	393,441	428,749	660,410	373,696	
	Havre	6,651	712,724	3,178	319,283	421,354	458,442	113,871	10
1921	Glasgow			2,233	147,479	383,460	481,691	160,918	
	Havre	4,335	266,725	2,102	119,246	359,329	411,912	61,426	
1922	Glasgow			1,934	226,178	272,521	355,793	73,072	
	Havre	3,760	451,687	1,826	225,509	225,154	300,758	44,831	11
1923	Glasgow			1,124	101,508	185,717	206,162	76,698	
	Havre	2,061	183,590	937	81,551	148,154	161,533	25,233	16
1924	Glasgow			750	75,188	106,967	164,415	111,190	
	Havre	1,331	117,692	581	42,504	100,511	109,990	16,834	
1925	Glasgow			541	42,466	96,313	116,287	103,852	
	Havre	939	72,604	398	30,138	74,195	82,589	11,910	

Glasgow Land Office opened June 1, 1907 as the Glasgow Land District for Valley County. Havre Land Office opened July 1, 1910. County names and areas changed during the times these offices operated. Administration area of the Glasgow Office in 1914 included Valley, Sheridan, Dawson and part of Chouteau Counties. Area of the Glasgow Office in 1921 covered Daniels, Garfield, McCone, Richland, Roosevelt, Sheridan, Valley and part of Phillips Counties. In 1914 Havre Land Office included Blaine, Hill, Toole and part of Chouteau Counties. In 1921 the Havre Office covered these Counties plus Liberty County and a part of Phillips County. Both of these Land Offices closed April 30, 1925 and were consolidated with the Great Falls Land Office because of diminishing demand and reduced area of land desired for application. Records for 1924 showed 1,381,005 acres of un-appropriated and unreserved land in the Glasgow Office area with 694,433 acres of unperfected entries. Havre Office area in 1924 had 761,957 acres unreserved and 461,149 acres of unperfected entries. The area is now served by the Montana Land Office at Billings. Other Land Offices which have served the area are: Great Falls, 1902-1907 and 1925-1948; Helena, 1867-1890; Lewistown, 1890-1902; Miles City, 1880-1907. The above records are for public domain only; receipts for and areas of Indian land sold, which are large, are not included.

Compiled from the annual reports of the Commissioner of the General Land Office to the Secretary of the Interior, 1907-1925. This office was combined with the Grazing Service to form the Bureau of Land Management.

demonstration farm was established near Twete, which was located near the present town of Hogeland. The great dry land movement to settle the Dakotas and eastern Montana lasted for a decade, 1908-1917. The Great Northern Railway actively promoted settlement along its lines at that time. This promotion, war in Europe, and high-priced wheat produced the maximum amount of settlement in 1914. This high rate of settlement continued for the next four years, 1915-1918. The drought of 1917-1920, with crop failures and farm land abandonment, was counteracted by our entry into the war, high wheat prices and slogans of "Food will win the war" and "Plant wheat to win the war." End of the war and the severe drought of 1919, with its crop failures or very low yields, brought about a distinct drop in settlement to a third of the amount in 1918. Recovering to double the 1919 amount in 1920, settlement dwindled rapidly thereafter, as nearly all of the good lands were taken up. The local land offices were closed in 1925, the arable lands were patented, and homesteading, the soddie and shack, the breaking plow and the water barrel were gone into the limbo of the past. Settlement and land breaking were largely accomplished in the period 1910-1918. Original settlement was in small units of 160 to 640 acres. Farm machinery was small and horse powered. During this period, crop yields were satisfactory, prices were good, and land values increased rapidly. Land mortgages were frequent and often large. Small tractors and larger machinery began to be used in 1917-1920 because of labor shortages. The drought of 1917-1919 and the severe winter of 1919-1920 caused an economic depression in the area, with foreclosures, land abandonment, and emigration.

Good weather produced good yields at fair prices during the period of 1920-1929. Farm unit and machinery sizes gradually increased during this period. The Great Northern Railway built two branch lines into the area during the expanding economy of the 1920's. Their Bainville to Peerless line was extended westward to Opheim in 1926. The Saco to Hogeland line was built in 1928. These branch lines extended into good cropland. The Great Northern Railway actively promoted settlement and crop production along the new lines. These new lines greatly reduced the hauling distance to a shipping point for much of the area, encouraging cash grain production within 35 miles of the lines. In the thirties came drought, desolation, emigration, low yields, or no crops at all. Sheep hides lined the fences from Glasgow to Havre. Low prices led to use of wheat for fuel. Mortgage holders took over much of the land and counties took hundreds of sections for taxes. Population was reduced, schools and stores were closed, and some dry farming towns disappeared. Relief, price supports, seed loans, resettlement and

AAA payments permitted many people and farm operators to stay in the area despite the unfavorable natural and economic climate.

In 1939 moisture returned to the parched prairies and prices started up. The venturesome and foresighted bought up the tax lands and mortgage sales. Survivors and newcomers enlarged their operating units during the favorable natural and price climates of the forties and fifties. Tractors increased in number, size, and power. Equipment of all types increased in size and cost. The cost of an efficient unit of equipment for grain farming designed to effectively use high-priced labor got so high that it became necessary to have large operating units of four sections. The horse vanished from the scene as farm power, along with the binder, the steam thresher and the header. In came the diesel tractor, the self-propelled combine and two-dollar wheat. Cattle usually replaced sheep because of their lower labor requirement.

Fort Peck Dam was authorized in 1933, and work started in October of that year. Reservoir lands were purchased by the Corps of Engineers. Missouri River bottom lands in the area had been used for ranching headquarters, hay production and alfalfa seed. These lands were flooded by 1940. Several ranchers were eliminated, as they had insufficient land remaining for an economic unit.

Cadastral Surveys

Settlement in Montana began in the west. Settlers from the East first went up the Yellowstone Valley south of the area, so Milk River Area was the last large homestead region in Montana. Dates of cadastral surveys are indicative of homesteading. Largest number of surveys in the area within one year was made in 1916, when 52 townships or partial townships were surveyed. Brass-capped pipe monuments cover 58 percent of the area, but old stone monuments are on 42 percent of the area. Dates of most recent cadastral surveys, by number of townships or partial townships within the four counties in the area, are shown in table 11.

Stone monumented surveys made prior to 1910 are in the majority only in the small part of Chouteau County in the area. There stone monument surveys cover 61 percent of the townships or partial townships. In Blaine County, 55 percent of the townships have brass-capped steel pipe monuments. Phillips County has 53 percent of these recent surveys made since 1910. In Valley County, the portion of brass-capped monument surveys is 67 percent. Stone section corner monuments may be difficult to locate because they

Table 11.--Dates of most recent cadastral surveys by number of townships or partial townships in the Milk River Area, Montana

Period of Survey	County				
	Blaine	Chouteau	Phillips	Valley	Total
1885 & '86		1	1		2
1891	16		4		20
1893			12	17	29
1894 & '95	13		20		33
1896 & '97	9	10	4	3	26
1898	15		8	8	31
1899-1905	6	2	12	4	24
1906	8		8		16
1907 & '08	1		7	6	14
1909		1	2	16	19
Rock monumented corners - total	68	14	78	54	214
1911	13			16	29
1912	7		5	4	16
1913			8	22	30
1914 & '15	9	1	5	18	33
1916	8	3	27	14	52
1917	29		11	1	41
1918	6	5	9	1	21
1919 & '20	10		10	1	21
1922 & '23			12	16	28
1946 & '47				17	17
1952 & '55	1			1	2
Brass cap steel post monumented corners - total	83	9	87	111	290
Grand total	151	23	165	165	504

Some partial townships are listed due to county lines within a township. Survey dates are indicative of demand by settlers prior to 1930. Subsequent to 1930, surveys indicate demand by investigational or administrative agencies. Compiled from Cadastral Survey records, Bureau of Land Management, 1959.

may have deteriorated or have been completely decomposed; or they may have been moved or removed in the many years since their placement. Forty-two percent of the townships in the area have rock monuments and are subject to being lost. It may become desirable to resurvey some of these townships in which corners cannot be located if need arises for exact location for administrative purposes.

Table 12.--Farms by size and type in the three principal counties of the Milk River Area, Montana, 1950 and 1954

		County			Three county total	Part of total percent	Percent of total of 1950
		Blaine	Phillips	Valley			
Number of farms:							
All farms	1954	734	711	1,098	2,543	100.00	91.54
	1950	808	803	1,167	2,778	100.00	100.00
By size:							
Under 50 acres	1954	19	25	40	84	3.30	3.02
	1950	37	33	39	109	3.92	3.92
50 to 99 acres	1954	16	26	18	60	2.26	2.16
	1950	26	24	26	76	2.74	2.74
100 to 219 acres	1954	85	43	72	200	7.86	7.20
	1950	104	63	89	256	9.22	9.22
220 to 499 acres	1954	102	71	201	374	14.71	13.46
	1950	125	86	242	453	16.31	16.31
500 to 999 acres	1954	144	143	277	564	22.18	20.30
	1950	142	191	341	674	24.26	24.26
1000 acres and over	1954	368	403	490	1,261	49.59	45.39
	1950	374	406	430	1,210	43.56	43.56
Land in farms, acres:							
All farms	1954	2,267,249	1,776,884	1,780,465	5,824,598	100.00	113.98
	1950	1,779,423	1,782,475	1,584,467	5,110,365	100.00	100.00
By size:							
Under 50 acres	1954	311	251	843	1,405	.02	.03
	1950	746	526	799	2,071	.04	.04
50 to 99 acres	1954	1,132	2,043	1,429	4,604	.08	.09
	1950	1,882	1,872	2,073	5,827	.11	.11
100 to 219 acres	1954	14,064	6,561	11,379	32,004	.55	.63
	1950	16,824	9,744	13,838	40,406	.79	.79
220 to 499 acres	1954	34,072	25,068	71,491	130,631	2.24	2.56
	1950	43,074	30,798	87,263	161,135	3.15	3.15
500 to 999 acres	1954	107,751	107,211	207,372	422,334	7.25	8.26
	1950	106,706	145,365	253,537	505,608	9.89	9.89
1000 acres and over	1954	2,109,919	1,635,750	1,487,951	5,233,620	89.86	102.41
	1950	1,610,191	1,594,170	1,190,957	4,395,318	86.01	86.01
Number of farms by type:							
All types	1954	758	673	1,105	2,536	100.00	91.29
	1950	808	803	1.167	2,778	100.00	100.00
Field crop farms	1954	320	287	734	1,341	52.88	48.27
	1950	257	163	550	970	34.92	34.92
Cash-grain	1954	279	286	734	1,299	51.22	46.76
	1950	192	139	539	870	31.32	31.32
Other field crops	1954	41	1	-	42	1.66	1.51
	1950	65	24	11	100	3.60	3.60
Dairy farms	1954	12	17	24	53	2.09	1.91
	1950	24	5	28	57	2.05	2.05
Poultry farms	1954	5	5	-	10	.39	.36
	1950	6	-	-	6	.22	.22
Livestock farms (ranches)	1954	262	318	208	788	31.07	28.37
	1950	361	459	341	1,161	41.79	41.79
General farms	1954	95	21	54	170	6.70	6.12
	1950	69	82	121	272	9.79	9.79
Primarily crops	1954	39	4	1	44	1.74	1.58
	1950	32	25	51	108	3.89	3.89
Primarily livestock	1954	-	1	6	7	.28	.25
	1950	6	20	16	42	1.51	1.51
Crops & livestock	1954	56	16	47	119	4.69	4.28
	1950	31	37	54	122	4.39	4.39
Miscellaneous and unclassified farms	1954	64	25	85	174	6.86	6.26
	1950	91	94	127	312	11.23	11.23

Compiled from Agricultural Census, 1950 and 1955, for Montana; Bureau of the Census, Washington, D. C.

AREA ECONOMY

Grain farming and livestock production support most of the people in the area. Wheat and beef cattle are the principal enterprises. Other small grains, hay and sheep are important agricultural products. In 1954, 51 percent of the farms were cash grain operations, 33 percent were livestock farms, 7 percent were general farms, 7 percent were miscellaneous farms, and 2 percent were other field crop farms as shown in table 12. Agricultural income of the area originated from livestock and their products to the extent of 45 percent in the period 1954-1957, and 55 percent from crops as shown in table 13. Livestock income surpassed crop sales in only one year, 1957, in the four-year period.

Economic activity in the area is principally agricultural. Other activity in the area is largely associated with or directly services the farming and ranching activities. Elevators, flour mills, implement dealers, and other enterprises directly connected with area agriculture are an important section of the economy. Livestock and the production of hay, wheat, and other small grains are the principal enterprises. Most of the cropland is dry farmed, but production from irrigated lands is important, especially from the Milk River Irrigation Project. Oil and gas and gold production have been important sources of income and employment in the past. Gold income ceased in 1950 and gas and oil income has been declining. Travel and tourism are increasingly important in the area. Travel will be increased across the area by the opening of State Highway 19, with the new bridge across the Missouri River south of Hayes and Landusky.

Nearly half of the labor force was employed in agriculture in 1950. Employment of the labor force in the area, according to Bureau of the Census 1950 figures, was as follows:

	Employed persons	
	number	percent
Agriculture	4,316	46.2
Wholesale and retail trade	1,428	15.3
Construction	740	7.9
Transportation, communication and other public utilities	654	7.0
Professional and related services	633	6.8
Business and personal services	511	5.5
Manufacturing	173	1.8
Finance, insurance, real estate	119	1.3
Mining	58	.6
Miscellaneous not reported	707	7.6
Total	9,339	100.0

Table 13.--Cash receipts of farms in three Milk River Area counties, Montana, 1954-57 (dollars)

County and year	Crops	Livestock and livestock products	Total from marketings	Government payments 1/	Cash receipts		Number of farms
					Total	Average per farm	
Blaine 1954	5,310,000	4,972,600	10,282,600	384,400	10,667,000	13,728	777
Blaine 1955	5,257,400	5,300,200	10,557,600	174,500	10,732,100	13,974	768
Blaine 1956	5,812,600	5,988,800	11,801,400	371,700	12,173,100	15,487	786
Blaine 1957	4,666,900	6,016,500	10,683,400	481,400	11,164,800	14,443	737
Phillips 1954	4,906,200	4,455,800	9,362,000	218,100	9,580,100	12,723	752
Phillips 1955	4,330,900	3,906,700	8,237,600	100,000	8,337,600	11,237	741
Phillips 1956	4,243,400	5,514,600	9,758,000	205,000	9,963,000	13,126	759
Phillips 1957	3,294,500	5,675,600	8,970,100	323,800	9,293,900	12,408	749
Valley 1954	9,976,300	4,074,900	14,051,200	261,900	14,313,100	12,328	1,161
Valley 1955	8,604,200	4,184,400	12,788,600	77,800	12,866,400	11,208	1,147
Valley 1956	9,862,900	5,086,200	14,949,100	253,800	15,202,900	12,939	1,174
Valley 1957	8,679,300	5,484,400	14,163,700	534,600	14,698,300	12,737	1,153
Total 1954	20,192,500	13,503,300	33,695,800	864,400	34,560,200	12,848	2,690
Total 1955	18,192,500	13,391,300	31,583,800	352,300	31,936,100	12,024	2,656
Total 1956	19,918,900	16,589,600	36,508,500	830,500	37,339,000	13,733	2,719
Total 1957	16,640,700	17,176,500	33,817,200	1,339,800	35,157,000	13,322	2,639

1/ Government payments do not include price supports and quotas, which are foundations for most of the return.

Compiled from Montana Agricultural Statistics, Montana Department of Agriculture and United States Department of Agriculture, Helena, Montana, December 1956 and 1958.

Future employment in the area will be dominated by the military. Glasgow Air Force Base will station 4,000 military personnel and will probably employ more than 400 civilians, a greater total than was employed in agriculture in the three Milk River Area counties in 1950. In addition to the employment at the base, there are a considerable number of Federal Government employees at Fort Peck and some at Fort Belknap Indian Agency and at the three county seats. The three county governments and the three county seat towns employ a considerable number of persons, so Federal and local government employment will probably predominate in the area after the Glasgow Air Force Base is fully staffed in 1960.

Social and economic adjustment within the area to the Glasgow Air Force Base is of great importance to the area. There will be a considerable expansion in wholesale and retail trade, especially at Glasgow. Demand for perishables; milk, meat, and produce will increase considerably. Consumption of soft drinks and beer will increase along with other demands due to the added population. Travel to and from the area will increase out of normal proportion because Air Force personnel are largely transient and are usually peripatetic individuals.

Previous activities of Federal agencies have been very important in the area. Prior to 1900, Indian agencies and the Army largely dominated employment and activity within the area. Use of Federal range largely supported the livestock economy of the area from 1886 to 1910. Homesteading and settlement of the Federal public domain was a principal economic activity from 1910 to 1920. During the thirties, Federal relief, rehabilitation, and construction of Fort Peck Dam largely supported the local economy and employment.

Manufacturing in the area is limited to feed and flour milling, creameries, dairies and bottling plants. There were 15 plants in 1950, employing 173 persons. Prior to 1950, the beet sugar factory at Chinook was the largest plant in the area. The plant was always marginal, as management was never able to secure a sufficient acreage of beets. Since closing of the plant, beets have been shipped to Billings. Closing of the plant has deprived the area of fresh beet pulp, an important source of feed for fattening livestock. Machinery was removed from the plant. It is possible that another sugar factory may be established in the area in the future. Sugar beets are one of the highest uses for irrigated land in the area.

Table 14.--Value of farm products sold by source in the three principal counties of the Milk River Area, Montana, 1949 and 1954

			Blaine	Phillips	Valley	Three County Total	Percent of Total
All farm products sold	dollars	1954	9,547,342	7,841,048	9,266,514	26,654,904	100.
	dollars	1949	7,717,404	4,945,204	6,932,908	19,595,516	100.
All crops sold	dollars	1954	4,758,076	3,940,941	6,139,262	14,838,279	55.67
	dollars	1949	2,139,419	1,218,541	3,109,345	6,467,305	33.00
Field crops sold	dollars	1954	4,747,408	3,940,766	6,130,514	14,828,688	55.63
	dollars	1949	2,139,034	1,217,629	3,099,516	6,456,179	32.95
Horticultural products sold	dollars	1954	668	175	8,748	9,591	.04
	dollars	1949	385	912	9,829	11,126	.05
All livestock and livestock products sold	dollars	1954	4,789,266	3,900,107	3,126,562	11,815,935	44.33
	dollars	1949	5,577,933	3,726,663	3,822,938	13,127,534	66.99
Dairy products sold	dollars	1954	265,699	112,068	204,974	582,741	2.19
	dollars	1949	192,533	95,002	211,913	499,448	2.55
Poultry and poultry products sold	dollars	1954	66,171	27,797	67,061	161,029	.60
	dollars	1949	83,922	47,100	79,475	210,497	1.07
Other livestock products sold	dollars	1954	4,457,396	3,760,242	2,854,527	11,072,165	41.54
	dollars	1949	5,301,478	3,584,561	3,531,550	12,417,589	63.37
Number of farms		1954	734	711	1,098	2,543	100.00
		1949	808	803	1,167	2,778	100.00
Average sales per farm:							
All farm products	dollars	1954	13,007	11,027	8,439	10,482	100.00
	dollars	1949	9,551	6,158	5,940	7,054	100.00
All crops sold	dollars	1954	6,482	5,543	5,591	5,835	55.67
	dollars	1949	2,648	1,517	2,664	2,328	33.00
All livestock and livestock products sold	dollars	1954	6,525	5,485	2,848	4,646	44.33
	dollars	1949	6,903	4,640	3,275	4,725	66.99

Compiled from County Table 4, Value of farm products sold by source: Agricultural Census, 1950 and 1955, for Montana, Bureau of the Census, Washington, D. C.

Product Values

Products of the area are principally grain and livestock, mostly beef cattle. Little consumer-finished goods is produced except flour and some dairy and poultry products. Dairy and poultry products are largely consumed within the area. Sales values, based on Montana Agricultural Statistics for 1954 for the three counties, Blaine, Phillips, and Valley, are as follows:

Products	Sale value	Percent of total value
All crops	$14,838,279	55.5
Livestock and their products except dairy and poultry	11,072,165	41.5
Dairy products	582,741	2.0
Poultry and their products	161,029	1.0
All farm products sold	$26,644,214	100.0

Products values fluctuate and area production varies with conditions. In "dry" years, crop production will be low and livestock will be forced to market because of shortage of feed. This occurred in 1949. Area product values, based on 1949 census data for the three counties, Blaine, Phillips, and Valley, are as follows:

Products	Sale value	Percent of total value
All crops	$ 6,467,305	33.0
Livestock and their products except dairy and poultry	12,417,589	63.5
Dairy products	499,448	2.5
Poultry and their products	210,497	1.0
All farm products sold	$19,594,839	100.0

Sales values shown in the two tabulations above do not show the value of production, as about one-half of the crops usually produced in the area are not sold, but are used for feeding to livestock. Tables 13 and 14 also show only sales values.

Values of total crop production in the three area counties, Blaine, Phillips, and Valley, in 1954 and 1949, are as follows:

Crop	Value 1954	Value 1949
Wheat	$14,556,400	$ 6,342,400
All hay	4,939,800	5,068,700
Barley	2,202,000	516,500
Sugar beets	492,800	871,000
Oats	450,000	444,800
Alfalfa seed	220,900	338,400
Flaxseed	166,000	59,200
Potatoes	158,500	415,700
Corn	139,000	81,800
Miscellaneous	37,900	1,402,900
Total all crops	$23,363,300	$15,541,400

Value of crops produced for feeding was $8,525,021 in 1954, or 36.5 percent of the value of all crops. In 1949, value of feed crops was $9,074,095, or 58 percent of the value of all crops. Use of the feed crops, hay, grain, and crop residues to produce meat and livestock products results in much more highly valued products. While considerable feed, both local and imported, is used for the maintenance of breeding herds, a large part is used for growing and fattening animals for market and to produce livestock products.

Values of farm sales and average receipts per farm for 1954 to 1957 are shown for the three counties and in total in table 13. Crop receipts for the area exceeded those of livestock except in 1957. Blaine County livestock receipts surpassed crop receipts except in 1954. Phillips County crop receipts produced superior amounts in 1954 and 1955, and livestock receipts produced more than crops in 1956 and 1957. Valley County consistently produced nearly twice the value of crops as compared with returns from livestock. Average cash receipts per farm varied from $11,208 in Valley County in 1955, to $15,487 in Blaine County in 1956. These figures indicate that farm units in the area are generally sufficiently large to be economic and may be fairly stable until more intensive enterprises or population pressures enter the area in volume. Number of farms in the three-county area has decreased from 2690 in 1954 to 2639 in 1957. Farm product values are shown in table 14, by type of sales and average sales per farm, for 1954 and 1949. Values are shown both as dollars and percentiles for comparisons. Figures are given for each of the three principal counties in the area and for the total of the three counties. Crop and livestock sales were about equal amounts in Blaine and Phillips Counties in 1954. In Valley County, 1954 crop sales were nearly twice those of livestock, making the three-county total sales 56 percent from crops, and 44 percent from livestock and their products. In 1949, when the dry year reduced crop production and forced reduction of livestock, crops produced only 33 percent of area sales, and livestock yielded 67 percent. Blaine County sold more than twice the value of crops as livestock, and in Phillips County the ratio was three to one. Valley County sold one-fourth more livestock than crops in 1949.

Crop Production

Production volume, area and value of crops for the three principal counties of the area are given below:

Table 15.--Value, area harvested, and yield of crops produced in Blaine, Phillips and Valley Counties, Milk River Area, Montana, 1957

Crop	Value	Acres Harvested	Yield
Wheat	$13,085,700	467,100	6,875,800 bu.
All hay	4,284,300	164,400	220,100 tons
Barley	1,862,400	129,700	2,699,100 bu.
Sugar beets	695,400	4,540	61,000 tons
Oats	249,400	19,800	518,500 bu.
Corn	191,300	7,700	147,000 bu.
Potatoes	131,900	390	40,200 cwt.
Alfalfa seed	93,100	3,500	39,000 lbs.
Flaxseed	82,400	6,300	30,900 bu.
Miscellaneous	81,700	600	
Crested wheatgrass seed	8,300	600	54,000 bu.
Rye	5,400	700	6,400 bu.
Total	$20,771,300	805,330	

Compiled from Agricultural Statistics, Montana, Volume VII, Montana Department of Agriculture and United States Department of Agriculture, Helena, Montana, December 1958.

Crop production in the area is subject to considerable variation in production due to climate, government controls and other factors. Prices may also influence planting and, of course, affect crop values. Table 15 shows the value, area harvested, and yield

Table 16.--Area harvested, yield and value of crops produced in the three principal counties of the Milk River Area, Montana, 1955

Crop	Area harvested Yield Value, dollars	County			Total
		Blaine	Phillips	Valley	
Wheat	acres harvested	99,500	106,000	280,700	486,200
	yield, bushels	2,464,500	2,308,900	5,308,900	10,082,300
	value, dollars	4,770,900	4,551,600	10,539,100	19,861,600
Hay	acres harvested	63,800	86,400	64,100	214,300
	yield, tons	108,300	93,000	68,400	269,700
	value, dollars	2,166,000	1,869,300	1,361,200	5,396,500
Barley	acres harvested	38,700	13,100	58,700	110,500
	yield, bushels	1,249,200	384,100	1,410,000	3,066,900
	value, dollars	933,900	284,200	1,029,300	2,247,400
Sugar Beets	acres harvested	2,960	1,030	--	3,990
	yield, tons	32,660	12,210	--	44,870
	value, dollars	398,500	149,000	--	547,500
Oats	acres harvested	7,000	5,700	9,000	21,700
	yield, bushels	224,200	194,100	267,500	685,800
	value, dollars	114,300	95,100	125,700	335,100
Flaxseed	acres, harvested	1,100	900	7,300	9,300
	yield, bushels	16,500	9,000	58,400	83,900
	value, dollars	41,600	23,000	151,300	215,900
Corn	acres harvested	1,700	1,300	3,100	6,100
	yield, bushels	33,900	25,700	62,400	122,000
	value, dollars	58,300	42,900	107,300	208,500
Potatoes	acres harvested	350	50	90	490
	yield, cwt.	50,100	3,700	4,800	58,600
	value, dollars	145,300	10,000	12,000	167,300
Alfalfa seed	acres harvested	1,400	3,200	700	5,300
	yield, pounds	110,000	260,000	74,000	444,000
	value, dollars	20,200	47,100	13,300	80,600
Rye	acres harvested	100	800	800	1,700
	yield, bushels	1,300	7,800	10,400	19,500
	value, dollars	1,200	15,600	9,700	26,500
Miscellaneous	acres harvested	100	150	100	350
	value, dollars	1,200	2,100	1,200	4,500
Total	acres harvested	216,710	218,630	424,590	859,580
	value, dollars	8,653,100	7,091,400	13,349,800	29,094,300

1955 was selected because it is more nearly average for rainfall and recent production than 1957, the last year of record. Range of total valuation is from $20,771,300 in 1957 to $31,435,000 in 1953 with an average of $25,520,983.

Compiled from Montana Agricultural Statistics, Volume VI, Montana Department of Agriculture, Helena, Montana, December 1956.

of 12 crops produced in three principal counties of the area in 1957, the last year for which records were published in 1959. The year of 1957 was below average in precipitation, 10.15 inches as compared with the long-time average of 12.25 inches for the area. In the recent years of record, 1952 to 1957, average area precipitation has ranged from 8.35 inches in 1956 to 15.25 inches in 1954, and total crop value of the three counties has ranged from $20,771,300 in 1957 to $31,435,000 in 1953, with an average of $25,520,983. Wheat value in the same years varied from $13,085,700 in 1957 to $24,528,000 in 1953, with an average of $17,444,150 for the three-county total. Consideration of all these factors led to the choice of 1955 as being the most typical recent year in precipitation and production, so 1955 data for acres harvested, yield, and value of crops for each of the three counties and their totals are given in table 16. More detailed information regarding crop production during the 1952-1957 period is presented in table 29 in Appendix G. This table gives area planted, relative importance of the harvested areas, irrigated and non-irrigated, with yields per acre. Table 29 lists 12 crops and miscellaneous crops for each year of the six-year period, showing recent trends and changes in crop planting and production.

Relative importance of the leading crops produced in the area is shown in table 16 for 1955, a typical recent year for amount of precipitation and crop production in the area. Wheat was the leading crop in 1955, occupying 57 percent of the harvested area and producing 68 percent of the total value. Hay was second, with 25 percent of the harvested area and 19 percent of the value. Principal types of hay are native or wild hay, produced on dry upland or from irrigated or sub-irrigated meadows; alfalfa, nearly all of which is irrigated; and grain hay which is usually harvested as a preferable alternative to harvesting for grain. Wild hay was 19 percent of the hay production on 31 percent of the hay area. Alfalfa hay produced 56 percent of the hay on 36 percent of the hay area. Grain and other tame hay accounted for the balance of 25 percent of the hay and 33 percent of the area cut for hay.

Other crops are relatively minor in importance. Barley was the third crop in 1955, using 13 percent of the harvested area and producing nearly 8 percent of the total valuation. Sugar beets were fourth, producing nearly 3 percent of the value but using less than one-half of one percent of the harvested area. Oats are the only other crop to produce over one percent of the value, with two and one-half percent of the harvested area. Flaxseed was gathered from slightly more than one percent of the harvested area, but produced only three-fourths of one percent of the value. Corn, potatoes, alfalfa seed, rye, and miscellaneous crops all produced less than one percent each of value and each covered less than one percent of the harvested area.

Livestock Numbers and Grazing Capacity

Crop income has generally surpassed livestock sales in the area since the extensive development of dry farming after 1915. Dry years which force livestock marketing usually cause livestock returns to surpass crop receipts. Land use for livestock greatly exceeds that for crops , as more of the area is rangeland than cropland, and much of the cropland is used for hay, pasture or other livestock feed. Livestock numbers in the area, by class of stock in each of the three principal counties and in total, are shown in table 17, by decennial years 1900 to 1950 and for the recent years 1953, 1956, and 1958. Livestock numbers steadily increased with settlement and development of the area from 1900 to 1930. The dry, depression thirties forced reduction in numbers until better conditions permitted a gradual build-up, which continued to a maximum in 1956. High prices and low precipitation in 1956, 1957, and 1958 have resulted in a 12 percent reduction from the 1956 numbers.

In 1958 there were 238, 100 animal units of grazing livestock dependent upon the ranges, pastures, and supplementary feeds of the area. These livestock were 205, 800 cattle and calves, 4, 600 milk cows, 107, 500 sheep and lambs, and 6, 800 horses. Cattle numbers dropped slightly in 1930 as compared with 1920, and more severely in 1940. By 1950 their number had doubled and continued to increase until 1956 to the maximum listed of 235, 200. Milk cows gradually increased from 915 to a peak of 9, 978 in 1930. Since then they have gradually declined to 4, 600 in 1958. In this case, production potential has probably at least remained stationary, if not increased, as present animals are much higher producers than their 1930 counterparts.

Sheep numbers in the area have varied erractically, as shown in table 17. Maximum number was attained in 1910, when there were 572, 485 sheep in the area. The number dropped to 267, 990 in 1920, and bounced back to 415, 086 in 1930, since which time it has declined to 107, 500 in 1958. Horses reached their peak number in 1920, with 67, 276, and were still numerous in 1930, with 50, 389. By 1940, there were less than half this number, and the next ten years again reduced their number by a half. Since then they have steadily declined to 6, 800 in 1958. Table 17 shows these changes, the numbers of hogs and chickens, livestock numbers as animal

Table 17. --Livestock on farms and ranches in three counties in the Milk River Area, Montana, 1900-58
(number of head)

County and Year	All Cattle & Calves	Milk Cows	Stock Sheep & Lambs	Horses & Mules	Hogs	Chickens	Animal Units of Grazing Animals 1/	Total Animal Units 2/
Blaine 1900 3/	22,992	330	156,749	3,033	482	4,587	57,374	57,586
Blaine 1910 3/	20,877	942	236,598	6,854	745	4/11,693	47,319	47,738
Blaine 1920	28,434	2,548	109,222	21,794	1,677	66,699	72,072	73,824
Blaine 1930	36,254	3,428	183,204	14,541	5,379	78,794	87,435	90,357
Blaine 1940	27,938	2,650	162,011	6,526	1,556	39,907	66,866	75,226
Blaine 1950	47,200	2,400	98,800	3,700	3,000	38,300	70,660	72,176
Blaine 1953	58,100	2,000	103,800	2,900	2,800	35,700	81,760	83,174
Blaine 1956	75,100	2,100	87,400	2,400	3,300	33,200	94,980	96,469
Blaine 1958	65,900	1,600	68,700	2,300	1,800	29,700	81,940	82,984
Phillips 1900 3/	20,768	178	121,641	2,768	403	3,980	47,864	48,043
Phillips 1910 3/	18,321	435	199,700	5,960	639	4/10,583	64,221	64,591
Phillips 1920	33,931	2,891	94,824	29,786	1,735	62,287	82,681	84,359
Phillips 1930	34,366	3,489	116,172	20,098	3,008	81,732	77,698	80,084
Phillips 1940	22,993	2,433	102,738	8,717	1,334	38,481	52,257	53,359
Phillips 1950	49,900	1,800	28,300	4,200	1,700	32,600	59,760	60,837
Phillips 1953	68,000	1,400	31,900	2,900	1,300	26,600	77,280	78,137
Phillips 1956	86,900	1,200	26,900	2,600	2,600	22,700	94,880	95,984
Phillips 1958	77,100	1,100	24,300	2,500	2,000	23,200	84,460	85,424
Valley 1900 3/	19,902	407	63,332	4,358	152	1,893	36,926	37,001
Valley 1910 3/	16,776	1,744	136,187	10,392	1,280	4/20,249	54,405	55,189
Valley 1920	33,205	969	63,944	15,696	2,680	93,571	61,689	64,230
Valley 1930	24,110	3,061	115,710	15,750	3,306	100,861	63,002	65,845
Valley 1940	20,175	3,235	74,327	7,000	1,312	51,006	42,040	43,388
Valley 1950	46,300	2,900	38,800	3,500	2,800	55,900	57,560	59,378
Valley 1953	59,000	2,400	39,400	2,600	1,800	45,900	69,480	70,848
Valley 1956	73,200	2,200	31,900	2,200	2,500	47,200	81,780	82,349
Valley 1958	62,800	1,900	34,500	2,000	2,300	43,700	71,700	73,149
Total 1900	63,662	915	341,722	10,159	1,037	10,460	142,164	142,630
Total 1910	55,974	3,121	572,485	23,206	2,664	42,525	165,945	167,518
Total 1920	95,570	6,408	267,990	67,276	6,092	222,557	216,442	222,413
Total 1930	94,730	9,978	415,086	50,389	11,693	261,387	228,135	236,286
Total 1940	71,106	8,318	337,076	22,243	4,202	129,394	161,163	171,973
Total 1950	143,400	7,100	165,900	11,400	7,500	126,800	187,980	192,391
Total 1953	185,100	5,800	175,100	8,400	5,900	108,200	228,520	232,159
Total 1956	235,200	5,500	149,200	7,200	8,500	102,100	271,640	274,802
Total 1958	205,800	4,600	107,500	6,800	6,100	96,600	238,100	241,557

1/ Exclusive of hogs and chickens; cattle, sheep, horses and mules only. Each class is one animal unit except sheep which are 5 sheep to 1 animal unit.

2/ Cattle, horses and mules equal one animal unit. Five sheep and lambs are one animal unit. Four hogs or 50 chickens are considered to be one animal unit.

3/ The statistics shown for 1900 and 1910 are estimated amounts, resulting from the following changes which occurred in the county boundaries:

Blaine: Organized from part of Chouteau in 1912, part taken to form Phillips in 1915.
Phillips: Organized from parts of Blaine and Valley in 1915.
Valley: Parts taken to form Sheridan in 1913 and part of Phillips in 1915.

4/ These figures are numbers of all poultry, which were the only available data for this year, 1910.

Compiled from Agricultural Census, 1900, 1910, 1920, 1930, 1940, 1950, and Montana Agricultural Statistics, December 1956; Montana Department of Agriculture, Helena, Montana.
Columns 7 and 8 have been computed as described above.

units of grazing animals, and total animal units of all classes of livestock. Grazing animals in Blaine, Phillips, and Valley Counties dependent on rangelands, pastures, and supplementary feeds totaled 238,100 animal units in 1958. The 1953-54 field inventory of the area indicated that the average recommended stocking rate for the rangeland only was approximately 12.12 animal unit years per square mile of rangeland. This inventory included 2,017,212 acres of public domain land and withdrawals, 924,560 acres of Land Utilization Project acquired land, and 3,698,405 acres of private and State-owned land. The difference in quality of these lands as measured by recommended stocking rates is as follows:

		Animal unit years	
Type of ownership	Sq. mi.	Per sq. mi.	Total
Public domain & wdls:			
Area Classification	2,490.35	7.74	19,282.42
Isolated Tracts	154.19	10.67	1,675.42
Ft. Peck Game Range	507.35	7.23	3,669.66
Sub-total-public domain	3,151.89	7.80	24,627.50
Land Utilization Project:			
Area Classification	876.68	13.12	11,502.08
Isolated Tracts	561.84	13.12	7,371.33
Ft. Peck Game Range	6.11	7.86	48.00
Sub-total-Adm. by BLM	4,596.52	9.47	43,548.91
Reclamation Withdrawal	77.63	11.53	894.83
Indian Allotment	131.36	13.36	1,755.75
Military Purchase	48.75	5.37	261.83
Sub-total-All Federal	4,854.26	9.56	46,461.32
State-owned:			
Area Classification	364.27	10.64	3,876.50
Isolated Tracts	587.73	10.33	6,076.41
Ft. Peck Game Range	24.42	5.52	134.83
Private:			
Area Classification	2,113.87	14.11	25,829.41
Isolated Tracts	2,655.58	12.02	31,937.00
Ft. Peck Game Range	32.88	6.75	221.91
Grand total-Rangeland of Milk River Area except Indian Reservations	10,633.01	10.77	114,537.38

The 1958 number of 238,100 animal units of grazing livestock in the three principal counties of the area have available approximately 7,828,440 acres of rangeland which will provide about 1,581,503 animal unit months of range forage in average or better production years. Annual requirement of the 238,100 animal units is 2,857,200 animal unit months. Range deficiency to supply this requirement is 1,275,697 animal unit months, which must be supplied by cultivated land pastures, crops, or crop residues. Supplementary feeds which are shipped into the area and purchased will also supply part of this requirement. Large amounts of cottonseed cake, some other concentrates, and molasses are shipped into the area. Cropland in the area embraces 1,343,244 acres, including 138,865 acres of irrigated land.

Population

Total population of the area was approximately 26,203 in 1950. This figure is the population total of the three principal counties in the area, as shown in table 18. Area population will approximate this, as the population of the part of Valley County which is outside of the area is probably equalized by the part of Chouteau County which is within the area. Only the population of Glasgow, 3,821, is considered to be urban. Rural non-farm population in 1950 was 12,740, which included the towns other than Glasgow. The rural farm population was 9,642.

Population in the area increased from 28,395 in 1930 to 32,639 in 1940, largely due to work and activity associated with the construction of Fort Peck Dam. In the next ten years these workers dirfted away, farms and ranches increased in size, and mechanization reduced workers on farms and ranches. Many farm families moved to town for city advantages. Population decreased 2,192 below the 1930 figure to 26,203, a loss of eight percent in twenty years. Both farm and non-farm population declined, farm population more severely, 25 percent, compared with 16 percent for non-farm population, during the ten-year period 1940-50. Only Valley County retained more people than in 1930; there were 11,353 in 1950 and 11,181 in 1930. Valley County growth in population was due to Fort Peck Dam, with increases in Nashua, Fort Peck and Glasgow.

Rural non-farm population increased greatly from 1930 to 1940. Population in the eight largest towns increased from 7,116 to 11,367. All towns increased in size except Saco and Opheim. In the 1940 to 1950 period, population in the eight towns remained virtually stationary, decreasing slightly to 11,273. A new town was incorporated in the area, Fort Peck, so total town population in 1950 was 12,487. Four towns increased in population and four decreased between 1940 and 1950. Only Chinook and Glasgow maintained a steady growth in population from 1930 through 1950, as shown in table 18. Only one town, Opheim, had less population

Table 18.--Population statistics for the three principal counties and for the larger towns of the Milk River Area, Montana, 1930-1950

County	Land area sq. miles	Population 1930	Population 1940	Population 1950	1950 Per sq. mi.	Amount of change by periods 1930-1940 percent	1940-1950 percent	1930-1950 percent
Blaine	4,267	9,006	9,566	8,516	1.99	+6.2	-11.0	-5.44
Phillips	5,229	8,208	7,892	6,334	1.21	-3.8	-19.7	-22.83
Valley	4,961	11,181	15,181	11,353	2.28	+35.8	-25.2	+1.54
Total	14,457	28,395	32,639	26,203	1.81	+14.9	-19.7	-7.72
Urban and rural non-farm population			19,798	16,561	1.14		-16.4	
Rural farm population			12,841	9,642	.66		-24.9	
Rural farm acres per capita			721	960			+33.1	
Acres per capita, total population			283	353	1.81		+24.7	
Town	County							
Chinook	Blaine	1,320	2,051	2,307	-	+55.4	+12.4	+74.77
Harlem	Blaine	708	1,166	1,107	-	+64.6	-5.1	+56.31
Dodson	Phillips	249	397	330	-	+59.1	-16.8	+32.52
Saco	Phillips	506	452	539	-	-10.6	+19.2	+6.52
Malta	Phillips	1,342	2,215	2,095	-	+65.0	-5.4	+56.11
Glasgow	Valley	2,216	3,799	3,821	-	+71.4	+ .6	+72.42
Opheim	Valley	424	344	383	-	-18.8	+11.3	-9.66
Nashua	Valley	351	943	691	-	+168.7	-26.7	+96.86
Fort Peck	Valley	uninc.	uninc.	1,214	-			

Compiled from records of the Bureau of the Census for Montana.

in 1950 than in 1930. All seven other towns increased in population in the twenty-year period. Nashua grew the most, 97 percent. Other large growths were Chinook, 75 percent, and Glasgow, 72.5 percent. In the next ten years to 1960, Glasgow will show excellent growth because of the development of the Air Force Base there.

Income

Median income per family in the area was $2,959 in 1950. This may be compared with the national median of $3,073 for 1950. Seventeen and seven tenths percent of the area's 6,345 families had incomes of $5,000 or more in 1950, and 30.4 percent had incomes of $2,000 or less. Nationally the figures were 20.1 percent with $5,000 or more, and 29.2 percent with $2,000 or less. Annual incomes in the area are probably more effective, more valuable, and subject to less demand than the average location in the United States. Table 28 of the appendix gives data on several socio-economic studies of the basin in comparison with corresponding United States averages for 1950.

Transportation

The transcontinental main line of the Great Northern Railway crosses the area along the Missouri River to the north side of the Milk River and along the Milk River. A branch line extends from Saco to Hogeland, serving Whitewater, Loring and Turner. Another branch line extends into the area from Baineville, terminating at Opheim. Passenger and freight service is available at Glasgow, Malta, and Chinook. Freight service is available at several points on the main line and at towns on the branch lines, nearly all of which have grain elevators and facilities for shipping livestock.

U. S. Highway 2 crosses the area, paralleling the main line of the railroad. This transcontinental route accommodates considerable traffic. Montana State Highway 19, from a Canadian highway to Swift Current through Morgan and Loring to Malta and Grassrange, provides a new paved route across the area. This route will attract travel to and from Billings. Travelers to and from Canada will make heavy use of this route to and from West Coast points in the U. S. A. The new route was made possible by a new steel and concrete bridge across the Missouri River near the head of Fort Peck Lake in Section 31, Township 22 North, Range 24 East. The new bridge, named the Fred Robinson Bridge, was dedicated August 16, 1959. Cost of construction was $718,025. The adjacent badlands area is being considered as a new State Park. This attractive new short route replaces a devious dirt trail through the badlands which crossed the Missouri by a tiny current-operated Power Plant toll ferry. This old route, though picturesque, was impassable in damp weather.

State Highway 24 south from Fort Peck is under construction to provide another more direct and shorter route to the south from the east end of the area. This route is paved northward from Glasgow to Opheim, and a graveled road goes into Canada from there to Moose Jaw and other points. Graveled roads extend northward to Canadian points from Malta, Harlem and Chinook. Graveled roads also go south into the area from these points and from Dodson. There are numerous other graded and drained roads and unimproved roads in the area which are passable when dry.

Frontier Airlines provides daily flights to Glasgow and Havre. There are landing strips in all the larger towns. Several ranchers use personal planes. Bus service is available at points on U. S. Highway 2. Truck freight lines serve the towns in the area.

Public Services

Usual business, professional, social, religious and entertainment facilities are available in Glasgow, Malta, and Chinook, and to a lesser extent in the smaller towns. These three county seat towns have hospitals. High schools are located at Chinook, Glasgow, Malta, Fort Peck, Harlem, Opheim, Dodson, Turner, Loring and Whitewater. Nearest colleges are at Havre, just west of the area, and at Billings, 140 miles south. Glasgow has a civic center, municipal swimming pool, and a golf club.

Electric power is supplied to the Milk River cities by the Montana Power Company. Bureau of Reclamation supplies power to Rural Electrification Administration cooperatives serving farms, ranches, and communities in the area. Montana-Dakota Utilities Company supplies natural gas from the Bowdoin and Bowes gas fields to the Milk River towns and Fort Peck. The Corps of Engineers administers the production of 130,000 kilowatts of power produced by four turbo generators at the Fort Peck hydroelectric plant. Power is produced from the drop created by Fort Peck Dam. Power is transmitted east through Bureau of Reclamation transmission lines to Wolf Point and Glendive, Montana, and west to Great Falls, Montana, to supply the Bureau transmission network in Montana and North Dakota. Sixty-one percent of the farms and ranches in the area were equipped with electricity in 1950 and service has been extended considerably since then.

The Mountain States Telephone and Telegraph Company supplies telephone service to the communities along Milk River and to Turner, Hogeland, Whitewater, Opheim and Loring north of the river. Fifteen percent of farms and ranches in the area were supplied with telephones in 1950, and service has been extended since then. There is no telephone service south of Milk River except for a few miles into the farming areas south of the major towns. There is one radio station located at Glasgow. The entire area, however, is served by broadcasts from larger cities outside the area, such as Havre, Great Falls, Billings and cities in Canada.

Several flour and feed mills operate in the area. Most of the elevators also operate a feed and supply business, selling grain and concentrates. Several elevators also grind and mix feeds. A sugar beet factory formerly operated at Chinook, but it has been dismantled. Sugar beets are now shipped to Billings for processing. Seven banks serve the Milk River Area. In 1953, these banks had a total capital stock of $380,000; deposits of $25,457,000 and over 13,000 depositors. Deposits increased in the period from 1949 to 1953 by nearly $4,000,000 or 20 percent, and depositors increased by over 1,000.

The U. S. Trade and Manufacturing Census gives the following trade data for the Milk River Area for the year 1948, the most recent year for which census data are available on a county basis:

Business	No. establishments	Annual Sales	Annual Payroll	No. employees
Retail trade	378	$23,873,000	$1,990,000	1,058
Wholesale trade	89	18,613,000	481,000	219
Personal services	67	593,000	107,000	64
Hotels, motels, and amusements	39	514,000	103,000	83
Totals	573	$43,593,000	$2,681,000	1,424

Tourism

Highway 2, with 171 miles in the area on a principal transcontinental and U. S.-Canadian route, supplies most of the tourist business in the area. Large and small towns on the highway offer accommodations. Accommodations in Glasgow and Chinook are of about the same quality as towns and cities east and west, so nearly a normal percentile of travelers use area facilities. Area facilities compete to some extent with those offered by Havre, Great Falls and

Williston as stop-over objectives. Highway 2 receives an important amount of traffic from tourists bound for Glacier and Yellowstone National Parks and the Canadian Rockies.

Fort Peck Lake and Fort Peck Dam are important tourist objectives, both for sight-seeing and recreation. Development of more access roads of better quality will promote increased use of the lake area. New Montana Highway 19 across the west end of the lake will attract tourist travel. The badlands adjoining the lake on each side here are interesting. This new highway will develop new travel into the area to and from Canada, Yellowstone National Park and between the area and Billings. State Highway 24 across Fort Peck Dam attracts considerable travel, some of which is Canadian-U. S. The roads into Canada from Malta and Harlem also generate some tourist traffic. Nelson Reservoir and Lake Bowdoin are points of interest for tourists. Fort Belknap Indian Reservation and the Little Rocky Mountains attract few tourists, but tourist use of these areas will probably increase in the future. Tourist attractions are an important feature of the economic resources of the area that should be further developed and that can be exploited.

Recreation

Fort Peck Lake affords all water sports on a grand scale. Fort Peck Lake is 189 miles long, 16 miles wide, and has a shore line of 1,600 miles. It is well provided with several recreation areas on both the north and south shores. The four principal recreation areas provide over-night and extended stay accommodations and sites for cabins under lease. Two of these sites are on the north shore at Fort Peck and the Pines, and two are on the south shore at Rock Creek and Hell Creek. A summer camp for organized youth groups is available at the Pines. Shelters, picknicking, and sanitary facilities have been provided at several fishing camp sites around the lake. Fort Peck Dam, the largest hydraulic fill-earth dam in the world, is a sight-seeing feature that demands attention from any traveler in the area. Nelson and Fort Peck Reservoirs afford good fishing.

Picnicking, camping, and water sports are important sources of recreation, especially to the local people. Boating, swimming, and water skiing are attractions. Cabin and summer home sites for local residents have been provided at both Nelson and Fort Peck Reservoirs. Many residents of Malta and Glasgow maintain boats on these waters during the season.

The Bowdoin Wildlife Refuge on U. S. Highway 2 provides attraction for tourists as well as for local people. During the 1953 season, over 4,200 people visited the refuge headquarters, and approximately 31,000 tourists stopped at observation stations along the highway to take photographs or observe refuge wildlife. The small antelope herd which is usually found close to the highway is a particular attraction. During the 1952 season, a total of 335 hunters, with an average bag of 2.9 ducks and geese per day, made use of the public shooting area on Bowdoin Refuge. Most of these were local people.

Big game and waterfowl hunting are excellent in the area. Deer abound in the Missouri breaks and in the badlands and mountains throughout the area. Antelope are numerous, especially on the plains. There are upland game birds in the area; sage grouse, sharp-tailed grouse, Chinese pheasants, and Hungarian partridges. Cottontail rabbits are distributed over the area.

Chief historical attraction in the area is the Bear's Paw Battleground and monument, about sixteen miles south of Chinook, the site of the last battle of Chief Joseph and the Nez Perce Indians against the United States Army. This site is little visited, even by local people. The Missouri breaks have considerable scenic value, but are so inaccessible that they constitute virtually no attraction at present. The new Robinson Bridge across the Missouri and the new paved highway from Billings, Roundup and Lewistown to Malta will cause a considerable increase in recreational use of this area, especially by tourists.

Economic Outlook

Future economy of the area is apparently largely dependent upon its agriculture. Prospects for the two principal agricultural products of the area, wheat and beef cattle, are largely subject to nation-wide price and demand influences. Wheat particularly is subject to acreage allotments, price supports, and a huge stored surplus that makes the next ten years very uncertain for this commodity. Power of the "farm bloc" is diminishing relatively and public support of the modern mechanized large-scale farmer and rancher is not what it used to be for the family farm of bygone days. Support for wheat and guaranteed prices may be greatly reduced or eliminated at any time. This action will be of great importance to the Milk River Area, as wheat is the leading and best adapted crop. Equally important is the fact that the area is marginal for wheat production, and therefore very sensitive to wheat price, demand, supply, and costs of production.

Agricultural future of the area should develop an increased amount of cattle raising combined with wheat growing, as the two enterprises utilize the cropland to better advantage than with wheat alone. There should be an increased amount of proper land use on the basis of capability, especially if wheat allotments or conservation payments are based on proper land use. This would reduce the area cultivated. If present trends and economic forces persist, farms and ranches will continue to increase in size and diminish in number in the Milk River Area. Corporation farming or ranching may well develop in the area by purchase or by pooling on the part of present owners.

More intensive use of irrigated land will tend to develop, depending to some degree upon population pressure, value of labor, and other opportunities for employment. Mechanization will promote the use of land for sugar beets subject to the limitations of government allotment. It is possible that a sugar factory might locate in or near the area. Great Falls has been suggested as a possible sugar-beet plant site. Great Falls is about 110 miles from most of the irrigated land in the area. Beets are now being shipped to Billings, over 200 miles distant, by rail. The sugar factory at Sidney is considerably nearer the eastern part of the area, but that company has not actively promoted beets in the area. Dairying is another enterprise which has potential in the area, especially on irrigated land. While the severe winters deter dairying, the enterprise is successfully conducted in other areas with equally severe winters.

Increased population in towns and the Air Force Base will provide markets for local produce which will permit intensive high-return crops to be produced on a limited area. While the growing season is short, all root vegetables and most of the frost-tender types can be produced from adapted varieties. There is even the possibility of developing a cannery in the area as population increases and freight costs rise. Possible canning or freezing crops would be string beans, peas, sweet corn, carrots, beets, cucumbers for pickles, cabbage for sauerkraut, potatoes, and pumpkins.

Sheep numbers in the area may vary with a number of factors. Synthetics may further replace wool, or possibly the full impact may have been realized. Labor cost and availability of experienced help may be an important factor deterring sheep production. In favor of increased numbers of sheep is their probable increase in farm flocks to utilize farm residues, and the possibility of management under fence , which has developed extensively elsewhere in eastern Montana, especially in the Powder River Basin.

Tourism will increase markedly in the area with use of State Highway 19 and increased demand for recreation. Recreation will greatly increase the use of Fort Peck Lake and all of its facilities. Recreation expansion will also increase travel across the area to and from Canada and to Glacier and Yellowstone National Parks.

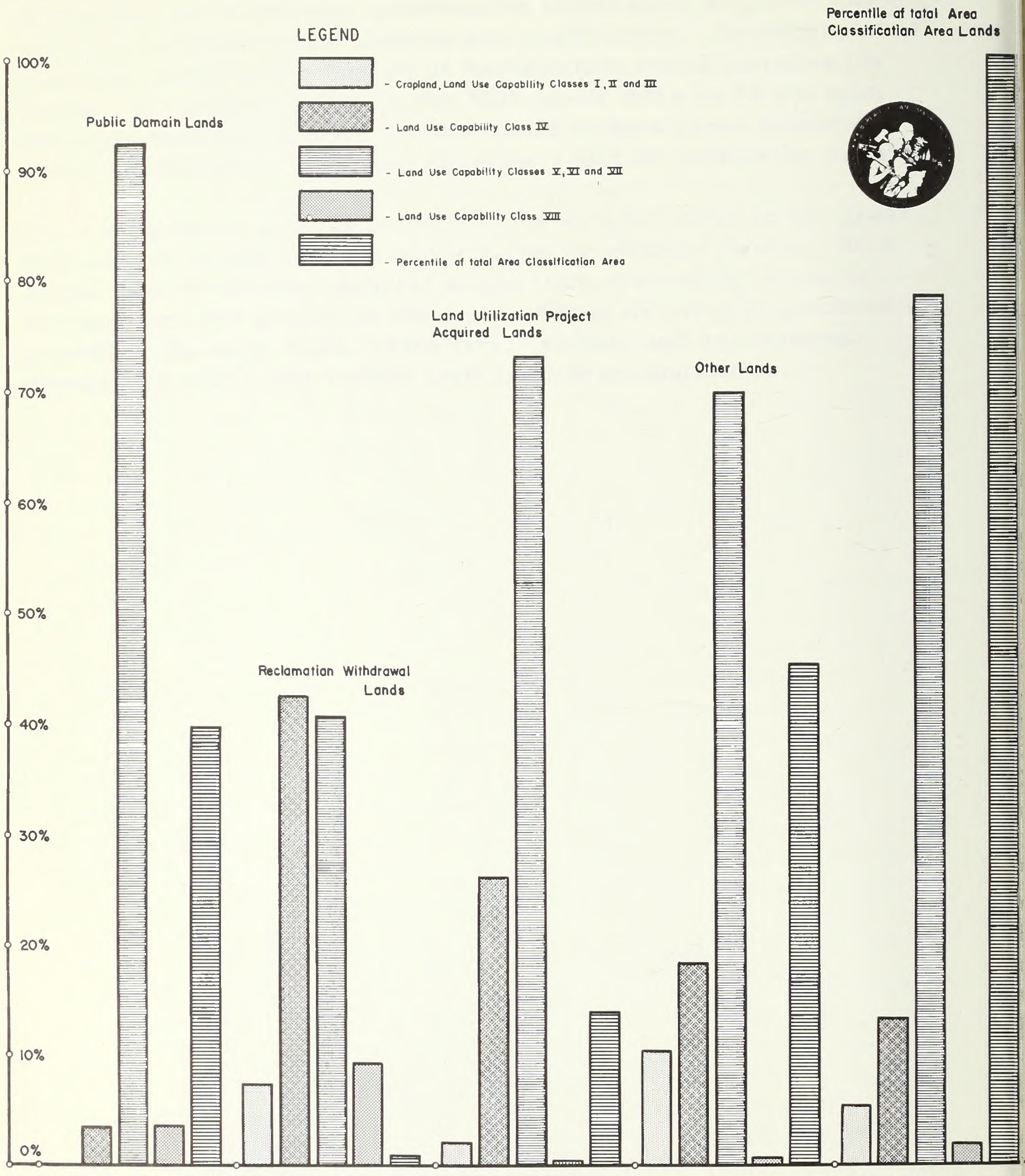
Increased demand for services and supplies by residents and tourists will cause the towns in the area to grow and develop, especially as higher standards and more leisure affect more people. Glasgow especially will increase in size, trade and scope because of the development of the Air Force Base there. This installation presents the largest single factor for immediate economic growth in the area. The Air Force Base affords opportunities for economic and social development to the entire area. It also presents economic and social problems calling for intelligent, vigorous action and decision on the part of the residents of the area and the staff at the base.

Minerals do not loom large in the future of the area. Gas and oil production is decreasing rapidly. All recent exploration has resulted in dry holes. Federal gas and oil leases produced $217,989 in 1958. Most of these leases will probably be dropped unless new discoveries are made in or near the area soon. Reserves of gold, silver, lead, zinc and copper in the mountains of the area are indefinite and may not be commercial. At present there is no incentive to prospect or develop them. Future demand may cause development of clays, bentonite, and expandable shales in the area. Shale and limestone in the area could be used for cement manufacture, but the regional market is adequately provided with cement mills at the present time. Sand and gravel for road and building construction are produced locally and this market will continue, but cannot be expected to expand greatly. Sub-bituminous coal reserves in the area are huge, and may be of future value for thermal electric power or chemurgy.

Bureau of Reclamation proposes to develop 68,800 acres of irrigated land after July 1, 1965. This scheduled development is in two projects, the Saco Divide Unit and the Glasgow Bench Unit. Development and use of this land will be of great economic benefit to the area. The new irrigated land will produce crops and crop byproducts of great value for livestock feed and for fattening livestock. This will be a further aid in stabilizing the livestock industry in the area, which is always subject to the dual threats of drought and severe winters. Both of these hazards are alleviated by production from irrigated land, especially by hay and sugar beet crops. Irrigation farming in the area as an enterprise virtually demands hay in the crop rotation and some intensive livestock production, either feeding livestock or dairying. Feeding livestock in the area affords an important market for local range livestock. Enterprises developed on the new irrigated land will depend upon economic conditions at the time of settlement, government allotments, supports and regulations, and operators' choices and preferences. Development of these two units by the Bureau of Reclamation would increase the present irrigable acreage in the Milk River Area by 50 percent. Irrigated land use on such a scale would mean a great economic advance for the area. Saco and Glasgow would be especially benefited.

Milk River Area is not attractive as a homesite to the great majority of people because of the rigorous winter climate. This factor is probably the greatest single item preventing intensive development and growth of the area. Those desiring to promote growth of the area must create civic, social, and recreational advantages which will tend to hold and attract population.

FIGURE 6
LAND USE CAPABILITY OF LANDS IN THE AREA CLASSIFICATION PORTION OF THE MILK RIVER AREA, MONTANA, BY LANDOWNERSHIP, 1954



Note: See Appendix C for explanation of Land Use Capabilities.

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LAND USE

Principal uses of land in the Milk River Area are grazing, farming, and recreation. Most of the grazing land is also used by wildlife which provides recreation in the form of hunting. Water surface in the area is fairly large and provides recreation. About 85 percent of the land in the area is used for grazing, 15 percent of the land in the area is used for farming, and one-fourth of one percent is recreational area. The 15 percent in farm land is divided into 13.5 percent non-irrigated and 1.5 percent irrigable. No allowance has been made for minor uses such as townsites, roads, and the Glasgow Air Force Base.

Relative Land Use Capability as percentiles of landownerships in the Area Classification portion of the Milk River Area is shown graphically in figure 6. This figure clearly shows the larger amounts of better capability lands in landownerships other than public domain. Land Use Capability by landownerships in the Area Classification part of the area is shown on the five maps with this report by a Roman numeral in each formula. Rangelands are considered to be in Land Use Capability Classes V, VI, and VII; and Classes I, II, III, and IV are capable of use for cropland. Class VIII does not produce enough forage to be of value for domestic livestock. Ninety-six percent of the public domain land in the area is in these rangeland capability classes and four percent is Class VIII. Land Utilization Project acquired lands are two percent cropland and 98 percent rangeland. The small amount of Reclamation Withdrawal land is eight percent cropland, 83 percent rangeland, and nine percent Class VIII. Other landownerships are 11 percent cropland, 88 percent rangeland, and one percent Class VIII. Total of the Area Classification portion is 5.5 percent cropland, 92.5 percent rangeland, and 2 percent Class VIII. Land Use Capability by landownerships in the Area Classification portion is presented in tabular form in table 8. Land Use in the Area Classification part of the area corresponds closely to the Land Use Capability Classes, with minor exceptions.

Rangeland Use

Land area used for range is 7,759,752 acres, or 85 percent of the gross land in the Milk River Area. This rangeland area is the gross size of the area less the cultivated land, with no allowance for minor areas of special uses or reserves such as townsites, roads, National forests, wildlife reserves, and Glasgow Air Force Base. This area is also used by wildlife and much of it is actively used by hunters during game seasons. Tree cover exists on 130,798 acres of the rangeland, or one and one-half percent of the gross area. Eighty-five percent of the area is utilized for range purposes largely because of topography. Some fairly level land is used for range because of soil limitations or because the size is too small to be farmed economically by present standards. Also a total of 12,804 acres of Classes I to III farm land is used for grazing because of Land Utilization Project ownership. Some farm land is also used for grazing by choice. Total area of potential farm land which is presently grazed in the area is estimated to be 455,281 acres, or five percent of the area.

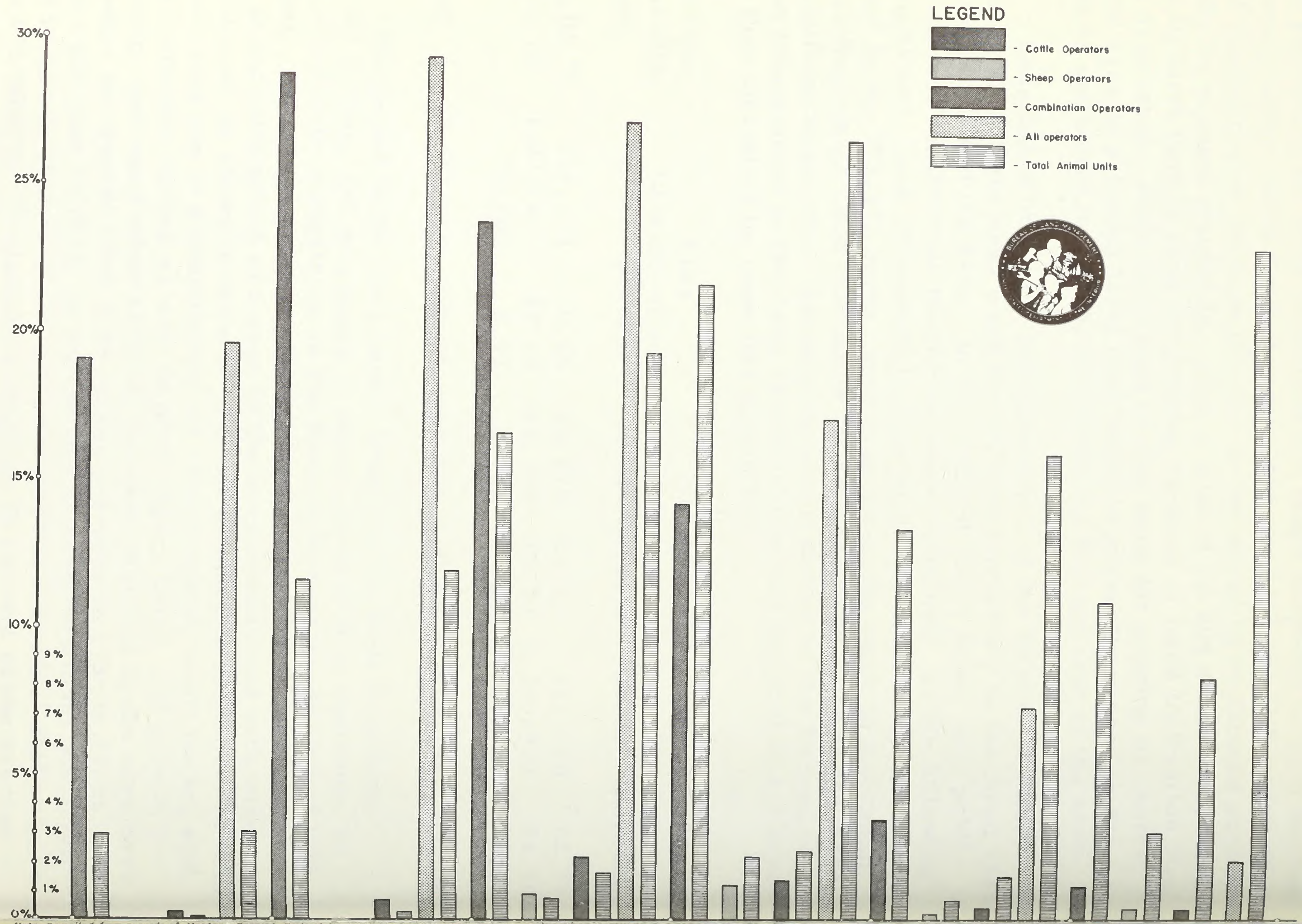
Rangelands under the administration of the Bureau of Land Management in the area were inventoried completely in the Area Classification part of the area. In the Isolated Tract Area, only public domain and withdrawals therefrom were examined. In the following compilation, Land Utilization Project acquired lands in the Isolated Tract Area, 359,576 acres, have been given the same proportional classification as Land Utilization Project acquired lands in the Area Classification portion. Rangelands administered by the Bureau of Land Management in the Area Classification and Isolated Tract areas are thus classified by Land Use Capability:

Land Use Capability Class	Area Classification		Isolated Tracts		Total	
	acres	percent	acres	percent	acres	percent
I, II, III, IV	216,634	10.05	110,876	24.23	327,510	12.71
V, VI, VII	1,879,217	87.18	344,707	75.33	2,223,924	84.96
VIII	59,709	2.77	2,013	.44	61,722	2.33
Total	2,155,560	100.00	457,596	100.00	2,613,156	100.00

Rangeland in the area varies from nearly level to rolling, steeply rolling, and extremely broken. Much of it is badlands, as described under rangelands in the Natural Resources section of this report. Forage production of rangeland averaged 4.95 surface acres per animal unit month of forage in the area inventoried with wide variations, as shown in table 5. Forage production is subject to wide fluctuations due to precipitation, its effectiveness, snow cover, and other climatic factors as well as plant vigor, litter, old growth remaining, and many other physical factors. Rainfall in the area over 49 years has varied from 7.35 inches per year in 1936 to 17.66 inches per year in 1938, as an average of seven stations, and from 5.07 inches in 1931 to 22.76 inches in 1927 at individual stations, as shown in table 3. Variations as high as 79 percent of the average rainfall can occur from year to year, as shown in table 4. The five

FIGURE 7

COMPARISONS OF LIVESTOCK OPERATORS BY CLASSES OF STOCK AND BY SIZE OF OPERATION,
MILK RIVER AREA, MONTANA, 1954



Note: Compiled from records of Montana Grazing District No. 1, Bureau of Land Management, Malta, Montana, 195 maps with this report depict differences in Area Classification rangeland as regards vegetal cover type, three principal plants, range condition, recommended stocking, site, Land Use Capability, slope, erosion condition and major soil characteristics.

The three-county grazing land area of 7,828,440 acres was used by 238,100 animal units of domestic grazing animals in 1958. The rangelands of the three principal counties supply approximately 1,581,503 animal unit months of feed on an average production year, which means that 1,275,697 animal unit months must be supplied from other sources, mostly hay, farm pastures, grain and other supplementary feeds. In addition, the grazing lands support 16,765 head of big game. While the big game, 10,000 antelope, 6,450 deer, and 315 elk, have access to Canada and other areas, their number remains fairly constant and would approximate 3,800 animal units, with a range demand of about 46,000 animal unit months.

Livestock operations in the Area Classification part of the area were studied and classified during field work in 1954. Operators were grouped by size of operation and class of livestock as follows:

Animal units owned (number)	Operators (number)	Total animal units	Operators (number)	Total animal units
	Cattle		Sheep	
1-50	72	2,214		
51-100	108	8,486		
101-200	90	12,131	4	673
201-500	54	15,791	5	1,678
501-1000	14	9,758	1	600
Over-1000	5	8,133	2	2,388
	Combination		Total all classes	
1-50	1	40	73	2,254
51-100	3	223	111	8,709
101-200	9	1,337	103	14,141
201-500	6	1,956	65	19,425
501-1000	2	1,275	17	11,633
Over-1000	2	6,220	9	16,741

Livestock operations in the Area Classification area are also shown graphically in figure 7. Nearly half of the operators, 48.7 percent, had from 1 to 100 animal units, but they controlled only 15 percent of the livestock. Operators with 101-500 animal units included 44.7 percent of all operators, with 46 percent of the livestock.

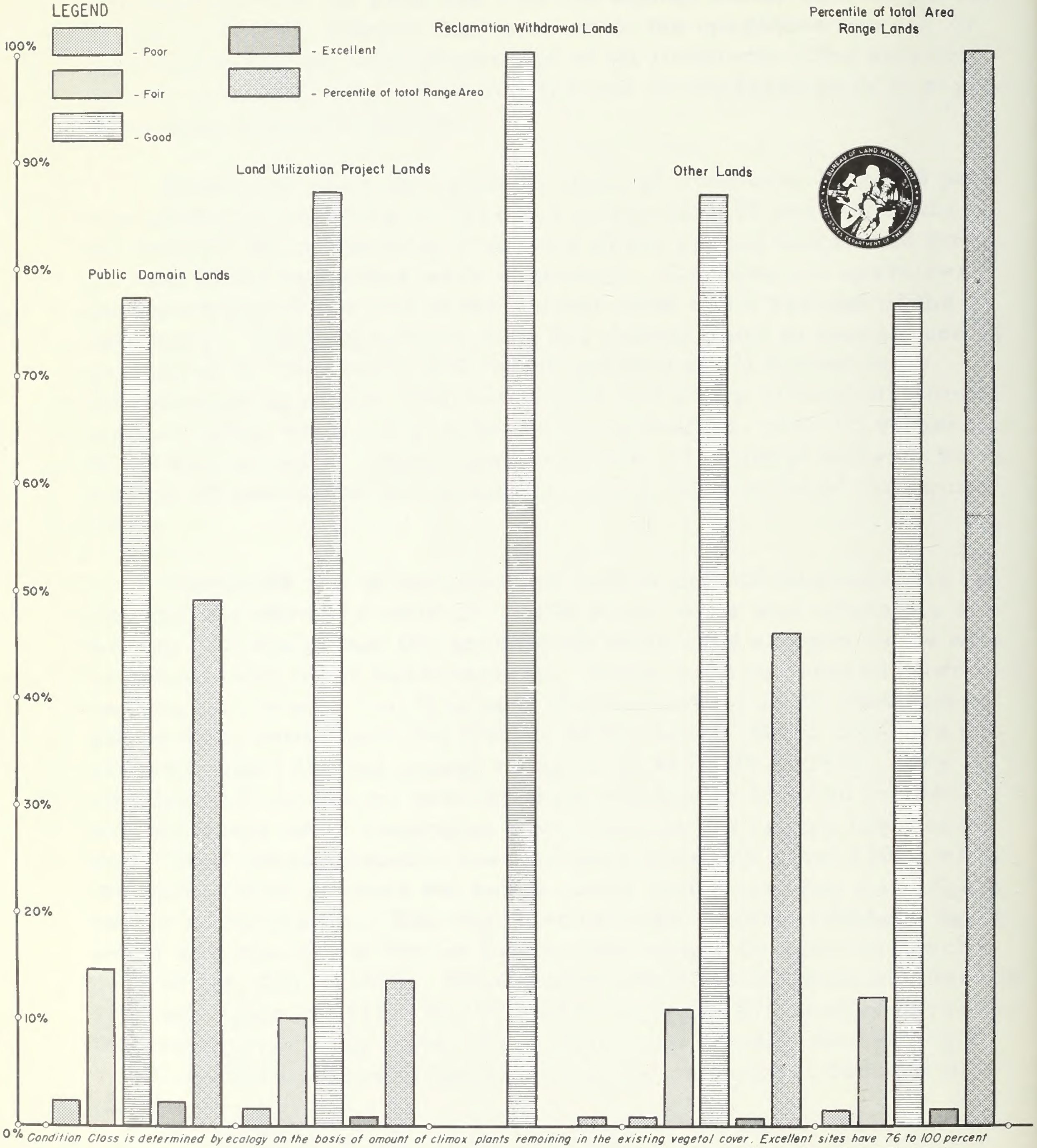
Larger operators with more than 500 animal units made up only 6.9 percent of their number, but operated 31 percent of the livestock. An economic unit of livestock operation is considered to be 200 animal units. Seventy-six percent of the operators in the Area Classification part of the area had 1 to 200 animal units, with 34 percent of the livestock. Twenty-four percent of the operators ran 201 or more animal units, with 66 percent of all livestock. The smaller operators usually have other enterprises or off-farm work to supplement their livestock income.

Cattle are the most common class of livestock, being 78 percent of the animal units in 1954 and comprising 91 percent of the operators. Sheep made up 7 percent of the animal units, and three percent of the operators were sheepmen. Combination operators accounted for 15 percent of the animal units and 6 percent of the operators. Cattle operators with 201 animal units or more were 19 percent of the operators and ran 46 percent of all animal units. Combination operators with both cattle and sheep having 201 animal units or more were 2.6 percent of the operators, with 12.96 percent of the animal units. Sheep operators with 201 animal units or more were 2.12 percent of the operators, and 6.40 percent of the animal units.

Livestock use of the area has varied in total numbers and by classes, as shown in table 17. Milk River Area was originally settled by cattlemen, and the grasslands were used as open range with round-ups and ranch headquarters. Sheep were introduced later and became numerous, reaching peak numbers about 1910, just before active farm settlement and fencing of the area. Sheep numbers decreased after 1910 but picked up again to 415,000 in 1930. Dry weather and low prices reduced their number to 337,000 in 1940, and labor and other conditions have continued to reduce their number. Beef cattle probably reached peak numbers about 1907, when the hard winter reduced the herds, until 1920 when they were again nearly as numerous. The dry thirties reduced their numbers again and it was late in the forties before they caught up again to reach a peak of 235,200 in 1956. Horses also attained maximum numbers in 1907 and again in 1916. In 1920 there were 67,276 head of horses in the area, decreasing to 50,389 in 1930, and steadily decreasing to 6,800 in 1958 because of motorization and consequent reduced demands.

Milk cows attained maximum numbers in 1930 and have since decreased from 9,978 at that time to 4,600 in 1958. Hogs numbered 11,700 in 1930 and have fluctuated downward to 6,100 in 1958. Chickens have similarly decreased from 261,400 to 96,600. Numbers of animals in these classes have been reduced because of specialization and larger farms and ranch units with fewer family farms of the

FIGURE 8
CONDITION OF RANGELAND BY LANDOWNERSHIP IN THE AREA CLASSIFICATION PORTION OF MILK RIVER AREA, MONTANA, 1954



Condition Class is determined by ecology on the basis of amount of climax plants remaining in the existing vegetal cover. Excellent sites have 76 to 100 percent of the cover as climax plants; Good, 51 to 75 percent; Fair, 26 to 50 percent; and Poor, none to 25 percent. Compiled from field studies, Missouri River Basin Investigations, Bureau of Land Management, 1953-1954.

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old type. Land use of milk cows, hogs, and poultry more properly concerns cropland use, but their numbers are consolidated with those of the range livestock.

Condition of the range vegetal cover over most of the area is good. Nearly 84 percent of the rangeland in the Area Classification part of the area is in good condition, 13 percent is fair, nearly 2 percent is excellent, and only somewhat more than one percent is in poor condition. Range condition class by landownerships is shown graphically in figure 8.

Natural climatic conditions and distribution of livestock water have contributed toward good condition of the range over most of the area by limiting use of rangelands. Severe winters in the area tend to hold down stocking rates of units during the range plant growing season to numbers that can be provided with winter feed. Amount of winter feed available for livestock in the area is limited by economic and natural conditions.

Cropland Use

Cropland area in the basin has been quite steadily increasing since settlers first came to the Milk River Valley. Area in crop increased steadily with active settlement from 1910 to 1917. Three years of drought then reduced plantings and caused economic disaster to farmers in the area. Good precipitation and prices increased the cropland area in the 1920's from 700,229 acres in 1924 to a peak of 1,207,767 acres in 1929, as shown in table 19. Dry years and low prices in the "dirty thirties" again reduced cropland area, but rainfall and prices both recovered and cropland area has gradually increased to 1,343,244 acres in 1959.

Number of farms in the area gradually increased to a peak of 4,629 in 1934 and has steadily decreased since to 2,543 in 1954. As the number of farms decreased, the area of cropland per farm has gradually increased from 232 acres per farm in 1934 to 519 acres per farm in 1954. Land use for crops will probably increase to a limited extent in the area depending upon economic conditions affecting land use and also upon Federal controls, allotments, supports and incentives. Careful analysis of precipitation and yield data as shown in several tables and figures in this report shows that the area is definitely marginal for non-irrigated crop production. Much of this information has been summarized in figure 9. Only adapted land should be farmed under careful conservation practices.

Table 19. --Number of farms and acres in cropland in farms in Blaine, Phillips, and Valley Counties, Milk River Area, Montana, 1924, 1929, 1934, 1939, 1944, 1949 and 1954

	1924	1929	1934	1939	1944	1949	1954
Number of farms:							
Blaine	1,135	1,288	1,401	1,078	917	808	734
Phillips	1,427	1,476	1,522	1,046	925	803	711
Valley	1,925	1,833	1,706	1,297	1,271	1,167	1,098
Total	4,487	4,597	4,629	3,421	3,113	2,778	2,543
Acres of cropland in farms:							
Blaine	180,496	279,756	278,292	244,422	264,476	300,282	330,088
Phillips	175,626	301,988	285,743	229,465	255,879	276,185	312,374
Valley	344,107	626,023	507,889	447,758	518,026	610,869	677,440
Total	700,229	1,207,767	1,071,924	951,645	1,038,381	1,187,336	1,319,902
Average acres of cropland per farm:							
Blaine	159	217	198	226	288	371	449
Phillips	123	204	187	219	276	343	437
Valley	178	341	297	368	407	523	617
Total	156	263	232	278	334	427	519

Compiled from Montana Agricultural Statistics, Volume VII, Montana Department of Agriculture, and U.S. Department of Agriculture, Helena, Montana, December 1958.

Data are also available for land in farms. This information is not as exact as cropland figures because farms with pasture land and cropland are included along with ranches which may have some hayland or cropland, but which are largely, or even exclusively, rangelands. The number of farms, land in farms, and the average size of farms in the three principal Milk River Area counties in Montana during 1925, 1940, 1950, and 1954 are as follows:

County	No.	All land in farms (acres)	Avg. size (acres)	No.	All land in farms (acres)	Avg. size (acres)
		1925			1940	
Blaine	1,135	895,995	789	1,078	1,628,690	1,511
Phillips	1,427	870,349	610	1,046	1,371,941	1,312
Valley	1,925	1,109,017	576	1,297	1,253,311	966
Total	4,487	2,875,361	641	3,421	4,253,942	1,243
Percentile variant from 1925				-24	+48	+94
		1950			1954	
Blaine	808	1,779,423	2,202	734	2,267,249	3,088
Phillips	803	1,782,475	2,219	711	1,776,884	2,499
Valley	1,167	1,548,467	1,326	1,098	1,780,465	1,621
Total	2,778	5,110,365	1,840	2,543	5,824,598	2,290
Percentile variant from 1925	-38	+78	+187	-43	+103	+257

These figures were compiled from Montana Agricultural Statistics, Volume VII, Montana Department of Agriculture and United States Department of Agriculture, Helena, Montana, December, 1958.

Cropland use for the most recent year for which figures are available, 1957, is shown in table 20 by relative percentile areas and values of the nine principal crops for each of the three principal counties of the area.

Table 20.—Percentages of total harvested areas, county areas, and value for the principal crops produced in the three principal counties of Milk River Area, Montana, 1957

	Blaine (percent)	Phillips (percent)	Valley (percent)	Total (percent)
Wheat				
Harvested area	50.35	53.25	65.39	58.01
County area	3.91	2.99	8.52	5.09
Total value	47.16	57.22	74.95	63.00
All hay				
Harvested area	27.54	31.00	11.96	20.41
County area	2.14	1.74	1.56	1.79
Total value	62.03	29.00	11.80	20.63
Barley				
Harvested area	18.09	8.49	18.55	16.11
County area	1.40	.48	2.41	1.41
Total value	19.14	5.70	10.38	8.97
Oats				
Harvested area	1.72	5.10	1.64	2.46
County area	.13	.29	.21	.21
Total value	2.03	2.37	.83	1.20
Sugar beets				
Harvested area	1.75	.47	–	.56
County area	.14	.26	–	.05
Total value	20.01	2.75	–	3.35
Corn				
Harvested area	1.19	.54	1.03	.96
County area	.09	.03	.13	.08
Total value	2.28	.33	1.09	.91
Potatoes				
Harvested area	.12	–	–	.05
County area	.01	–	–	–
Total value	1.78	.14	.17	.64
Flaxseed				
Harvested area	.57	–	1.17	.78
County area	–	–	.02	–
Total value	.39	.16	.63	.40
Alfalfa seed				
Harvested area	.81	.64	.07	.43
County area	.01	–	–	–
Total value	1.79	.66	.46	.45
Total:				
Area harvested, acres	209,530	186,110	409,690	805,330
Co. area, acres	2,700,658	3,317,556	3,143,713	9,161,927
Value, dollars	6,051,800	4,518,700	10,200,800	20,771,300
Pct. co. area harvested	7.76	5.61	13.03	8.78
Pct. of co. in Milk River Area	100.00	100.00	86.50	95.40

Compiled from Montana Agricultural Statistics, Volume VII, Montana Department of Agriculture and United States Department of Agriculture, Helena, Montana, December, 1958.

Relative importance of crops grown in the Milk River Area as shown by yields and returns for the combined data of Blaine, Phillips and Valley Counties, Montana, in 1957, is as follows:

Crop	Area harvested acres	percent	Returns dollars	percent
Corn	7,700	.96	191,300	.91
Oats	19,800	2.46	518,500	2.47
Barley	129,700	16.12	1,862,400	8.88
Flaxseed	6,300	.78	82,400	.39
All hay	164,400	20.43	4,284,300	20.44
Alfalfa hay	70,600	8.77	2,434,288	11.61
Wild hay	42,900	5.33	522,007	2.49
Alfalfa seed	3,500	.43	93,100	.44
Crested wheatgrass seed	600	.07	13,100	.06
Rye	700	.09	5,400	.03
Sugar beets	4,540	.56	695,400	3.32
Wheat	467,100	58.05	13,085,700	62.43
Potatoes	390	.05	131,900	.63
Total	804,730	100.00	20,963,500	100.00

These data were compiled from Agricultural Statistics, United States Department of Agriculture and Department of Agriculture, Helena, Montana, Volume VII, December, 1958.

Cropland use as area harvested, yield and value of crops produced in the three principal counties of the Milk River Area in 1957 and 1955 are shown in tables 15 and 16. Table 16 for 1955 shows data for the more typical year climatically. Recent cropland use in the three principal counties of the area is shown in table 29 in Appendix G. This tabulation gives area planted and harvested, relative importance by harvested area and value and yields per planted and per harvested acre. Total crop yield and value, irrigated and non-irrigated area harvested, and yields per acre are also given for 14 crops for the six years, 1952 to 1957, inclusive. Table 29 clearly shows changes in crop choice over the six-year period. Wheat has fluctuated from 465,000 acres planted in 1954 to 639,900 acres in 1953, largely due to government allotments and controls.

Table 21.--Area and value of all crops, irrigated and non-irrigated, in three Milk River Area counties, Montana, 1954-57

County and year	Irrigated			Non-irrigated			Total		
	Area harvested acres	Value of crop production	Value per acre dollars	Area harvested	Value of crop production	Value per acre dollars	Area harvested	Value of crop production	Value per acre dollars
Blaine 1954	53,200	2,377,800	44.70	165,810	5,196,300	31.34	219,010	7,574,100	34.58
Blaine 1955	46,700	2,387,500	51.12	170,010	6,265,600	36.85	216,710	8,653,100	39.92
Blaine 1956	43,610	2,406,800	55.19	156,510	5,039,300	32.20	200,120	7,446,100	37.20
Blaine 1957	50,520	2,514,100	49.76	159,010	3,537,700	22.25	209,530	6,051,800	28.88
Phillips 1954	39,240	1,453,800	37.50	179,630	5,116,400	28.48	218,870	6,570,200	30.01
Phillips 1955	31,100	1,257,800	40.44	187,530	5,833,600	31.11	218,630	7,091,400	32.43
Phillips 1956	32,410	1,338,000	41.28	155,480	3,826,600	24.61	187,890	5,164,600	27.48
Phillips 1957	34,200	1,233,400	36.06	151,910	3,285,300	21.63	186,110	4,518,700	24.27
Valley 1954	23,620	777,300	32.91	380,930	8,441,700	22.16	404,550	9,219,000	22.78
Valley 1955	13,120	535,100	40.79	411,470	12,814,700	31.14	424,590	13,349,800	31.44
Valley 1956	22,530	907,900	40.30	380,960	9,718,600	25.51	403,490	10,626,500	26.33
Valley 1957	23,530	945,400	40.18	386,160	9,255,400	23.97	409,690	10,200,800	24.89
Total 1954	116,060	4,608,900	39.71	726,370	18,754,400	25.81	842,430	23,363,300	27.73
Total 1955	90,920	4,180,400	45.97	769,010	24,913,900	32.39	859,930	29,094,300	33.83
Total 1956	98,550	4,652,700	47.21	692,950	18,584,500	26.81	791,500	23,237,200	29.36
Total 1957	108,250	4,692,900	43.35	697,080	16,078,400	23.06	805,330	20,771,300	25.79

Compiled from Montana Agricultural Statistics, Volumes V, VI and VII, Montana Department of Agriculture and United States Department of Agriculture, Helena, Montana, 1954, 1956, 1958.

Changes in area harvested, relative importance, yield and value of the principal crops in the six years for the combined area of the three principal counties in the Milk River Area are as follows for harvested crops:

	Percent of change from 1952 to 1957			1952 Total	
		Relative importance			
Crop	Area	Area	Value	Yield	Value (dollars)
Corn	+108	+123	+165	48,200 bu.	84,600
Wheat	-16	-11	-2	8,063,300 bu.	16,218,300
Barley	+350	+377	+153	767,800 bu.	895,500
Oats	-51	-48	-73	1,408,200 bu.	1,109,000
Flax	+800	+875	+567	12,300 bu.	15,400
All hay	-23	-18	-16	212,310 tons	6,167,400
Alfalfa hay	+56	+63	+29	87,100 tons	278,720
Wild hay	-56	-53	-64	60,010 tons	156,026
Sugar beets	+320	+331	+449	12,620 tons	154,100
Potatoes	-45	-37	-38	75,060 cwt.	265,100
Alfalfa seed	-58	-56	-62	819,000 lbs.	294,500
All crops	-4	-5.4	-17.7		25,224,800
Irrigated crops	-2	+4.0	+9.7		5,197,000
Non-irrigated crops	-6	-0.6	-2.5		20,027,800

Cropland area of 1,343,244 acres in the Milk River Area in 1959 was 138,865 acres usually irrigated and 1,204,379 acres non-irrigated cropland. Relative land use of these areas is shown in table 21, by counties and by area harvested and the value of crop production of each type and in total, for the recent years, 1954 to 1957. Total harvested area in this period varied from 791,500 acres to 859,930 acres. Irrigated cropland harvested varied from 90,920 acres to 116,060 acres. Variations in non-irrigated harvested area and variations in value are also shown in table 21. Average value of irrigated cropland production varied from $39.71 to $47.21 per acre. Average non-irrigated cropland production was valued at $25.81 to $32.39 per acre, an advantage of 46 to 54 percent for irrigation. The advantage in high-return irrigated crops such as sugar beets and potatoes is much greater. Much of the irrigated area is used for native hay and other low-value crops. Table 21 clearly shows the stability of return from irrigated lands in the area as compared with the wide fluctuations of production from non-irrigated lands.

Irrigated Cropland Use

Irrigable land in the area is considered to be 138,865 acres, mostly in the Milk River Project developed by the Bureau of Reclamation. Much of the heavier clay land is in native bluestem wheatgrass (bluejoint), which is irrigated a few times, often only once, and then cut for hay. Native hay land is located along the Milk River, Peoples Creek, and other creeks. Use of irrigable land is presented in table 21 as acres harvested, value of production and value per acre for each of the three principal counties in the area. Irrigated land use in detail by crops produced in the three counties is shown for the years 1952-1957 in table 29 in the appendix. Figures in this table show that irrigated cropland harvested varied from 90,920 to 123,320 acres from 1952 to 1957.

Agricultural census data of 1954 for Blaine, Phillips, and Valley Counties, Montana, show that there were 896 irrigated farms covering 2,833,986 acres with 131,865 acres irrigated. The irrigated land was used for cropland, 118,084 acres, and for irrigated pasture, 13,781 acres. Data for irrigated farms in each county in 1954 are as follows:

County	No. of farms	Percent of all farms	Cropland harvested (acres)	Cropland pasture (acres)
Blaine	381	51.9	85,671	2,432
Phillips	277	39.0	50,455	4,612
Valley	238	21.7	30,485	3,098
Total	896	35.2	131,865	10,162

	Irrigated cropland			Irrigated pasture	
	no. of farms	area (acres)	harv. area (acres)	no. of farms	area (acres)
Blaine	380	50,925	46,796	118	4,129
Phillips	271	50,455	44,350	63	6,095
Valley	238	30,485	26,928	46	3,557
Total	889	131,865	118,084	227	13,781

Census figures for 1954 show 342 farms in the three principal counties of the area on which all harvested crops were irrigated. These 342 farms harvested 49,597 acres of irrigated cropland. Thirty-nine of these irrigated farms were less than 30 acres in area, 36 were 30 to 49 acres, 88 were 50 to 99 acres, 103 were 100 to 199 acres, and 76 were 200 acres or more.

Distribution by area counties of farms with all crops produced from irrigated land in 1954 is as follows:

	Irrigated cropland		Size of farms by area, acres						
County	no. of farms	area harv. (acres)	1 to 9	10 to 19	20 to 29	30 to 49	50 to 99	100 to 199	200 or more
Blaine	196	26,614	8	12	3	13	51	67	42
Phillips	100	16,752	1	5	3	15	29	22	25
Valley	46	6,231	3	3	1	8	8	14	9
Total	342	49,597	12	20	7	36	88	103	76

Area of irrigated crops harvested in the three counties varied from 90,920 acres in 1955 to 116,060 acres in 1954 over the six years, 1952 to 1957. Area of irrigated grains varied from 19,400 acres in 1955 to 31,600 acres in 1952. Decrease in grain area was principally due to oats, which declined from 10,400 acres in 1952 to 4,400 acres in 1957. Corn increased from 300 to 900 acres. Barley remained quite constant, about 5,250 acres. Wheat decreased from 15,100 acres to 10,500 acres. Hay varied from 64,700 acres to 84,600 acres. Alfalfa hay increased quite steadily from 31,700 acres to 52,200 acres. Wild hay area is quite erratic, probably varying with flood waters available. Extremes were 10,900 acres in 1955 to 36,306 acres in 1952. Sugar beets increased from 1,080 acres to 4,540 acres. Harvested areas and yield per acre for 14 irrigated crops in the three counties for the years 1952 to 1957 are shown in table 29 in the appendix.

Irrigated land use on the largest segment of irrigable land in the area , the Milk River Project of the Bureau of Reclamation, is shown for 1957 in table 22. Most of the irrigated land was used for forage crops, the area being 71 percent of the 80,283 acres of irrigated crops harvested on the project. Alfalfa hay was the principal crop, being 35 percent of all crop area. Other hay was second, with 25 percent. Small grains were the second group of crops, covering 22 percent of the harvested area, with wheat 12 percent, oats 6 percent, and barley 4 percent. Sugar beets are the other important crop, making up 6 percent of the harvested area, with 24 percent of the total value.

Development of the two proposed irrigation projects in the area by the Bureau of Reclamation should increase the irrigated acreage in the area by 68,800 acres. These proposed projects are named Glasgow Bench and Saco Divide, with 59,400 acres and 9,400 acres

Table 22. --Crop production, Milk River Project, Bureau of Reclamation, Milk River Area, Montana, 1957

	Area	Yield			Value, dollars		
Crops Harvested	Acres	Unit	per acre	Total	per unit	per acre	Total
Cereals:							
barley	3,066	bu.	34.0	105,572	.65	22.38	68,622
oats	5,199	bu.	41.0	213,992	.50	20.58	106,996
wheat	9,528	bu.	26.0	245,449	1.81	46.63	444,262
Total Cereals	17,793	bu.				34.84	619,880
Forage:							
alfalfa hay	28,430	ton	2.6	73,623	19.97	51.71	1,470,202
other hay	19,765	ton	0.8	16,458	19.72	16.42	324,575
irrigated pasture	6,576	AUM	5.8	38,426	5.00	29.22	192,130
corn fodder	67	ton	13.3	891	15.00	199.48	13,365
silage	1,285	ton	9.3	11,941	8.00	74.34	95,528
Crop residue:							
beet tops	-	ton	-	61,767	.99	-	60,914
stubble	-	AUM	-	303	5.00	-	1,515
straw	-	ton	-	2,030	3.00	-	6,090
other forage	924	ton	2.2	2,026	10.00	21.93	20,260
Total forage	57,047	-	-	-	-	38.29	2,184,579
Sugar beets	4,602	ton	13.4	61,767	9.35	125.49	577,522
Potatoes	135	cwt.	150.3	20,287	2.92	438.80	59,238
Seeds:							
alfalfa	490	cwt.	0.9	418	20.58	17.56	8,603
flaxseed	50	cwt.	10.7	537	4.62	49.62	2,481
grass	122	cwt.	1.1	124	60.00	66.43	7,440
Total seeds	652	-	-	-	-	28.41	18,524
Family gardens	54	value	-	-	-	300.93	16,250
Total all crops	80,283						3,475,993
less multiple crops	328						
Total harvested	79,955					43.47	3,475,993
Additional revenue 1/							317,637
Total value							3,793,630
Total Irrigated 2/	81,548						
Average value per irrigated acre						46.52	

1/ Additional revenue is from sugar program; factory $160,131, Federal $157,506.

2/ Class 1-4 land, 68,798 acres; Class 5 land 12,750 acres, Bureau of Reclamation Land Classification. In addition to the 81,548 acres irrigated there are an additional 52,478 acres irrigable, or a total of 134,062 acres irrigable. Grazed or fallow lands cover 47,516 acres, and there are 4,998 acres in farmsteads and roads.

Compiled from Annual Project History, Milk River Project, Montana; Bureau of Reclamation, Malta, Montana, 1957.

irrigable, respectively. This would increase the present irrigated area 50 percent. Development of this new irrigated land would add a considerable volume of hay and other forage to assist in stabilizing the livestock industry in the area. Supplementary feed, especially roughages, are very important in this area because of the severe winters. Development of the two proposed irrigation projects will benefit the economy of the area with new settlers and additional production of irrigated crops. Development of the new projects may attract some settlers who will engage in intensive enterprises of especial benefit to the area. Bureau of Reclamation estimates that the annual benefits of the two proposed projects will be $2,952,300. The benefits will be derived from irrigation, $2,944,400, and from fish and wildlife, $7,900.

Much of the irrigated land in the Milk River Area is heavy Bowdoin clay, a very tight soil which takes water slowly and produces large deep cracks when it drys out. Much of this clay is subject to flooding and has poor drainage accompanied by alkaline-saline conditions. Such land is limited to use for native "bluejoint" (bluestem wheatgrass) hayland. Soil limitations make native "wild" hay a very important irrigated crop in the area. Recent experiments with nitrogen fertilizer on the Milk River Project show that yields can be increased to over three tons per acre. Economic increase is about two and one-half tons from an application of 80 pounds of nitrogen per acre. Adoption of fertilization of hay meadows is a very important practice for the benefit of both the livestock industry and economy of the area.

Native "bluejoint" (bluestem wheatgrass) hay is an important crop in the area, both irrigated and non-irrigated. In 1957, an experiment was conducted to test the value of nitrogen fertilizer on "bluejoint" hay meadows east of Saco. These meadows are on Bowdoin Clay soil, a site of little or no value for any other crop. Irrigation was by frequent, careful irrigations. Where flooding of the meadows was practiced, little benefit was derived from the nitrogen applications. Results of this experiment give convincing proof of the value of nitrogen fertilizer not only in increased production but also in greatly improved nutritional quality of the hay or forage. Increased beef production would result not only from greatly increased volume but also from the higher nutritional quality , as shown by the following results.

Nitrogen fertilization of hay meadows near Saco in 1957 produced hay crops with nutritional values as follows:

Nitrogen applied per acre (lbs.)	Hay Crop			
	Yield per acre (lbs.)	Protein content (percent)	Carotene content mg. per lb.	Protein production per acre (lbs.)
0	1,890	6.1	26.3	115
100	4,310	7.6	40.0	328
200	5,040	10.6	47.7	534
300	6,160	12.3	60.8	757

Non-irrigated Cropland Use

Non-irrigated cropland in the area covers 1,204,379 acres. Principal use of this cropland is for the production of wheat, mostly spring wheat, under biennial strip cropping with alternate years of fallow. Crops which will not pay for harvesting or which become so weedy that a satisfactory yield is doubtful are cut for hay or are grazed. Wheat production is a marginal enterprise in the area, as is clearly shown by yield data in table 23 and graphically in figure 9. Only suitable land which is capable of producing economic crops should be farmed, and such land should be farmed with good conservation management and practices. The break-even yield is at least two bushels per acre lower for a combined livestock-grain operation than is the case for the grain enterprise alone. To make better use of the land and of crop residues, grain should be produced in conjunction with livestock in the Milk River Basin. Small grains other than wheat, especially barley, are also produced on non-irrigated lands. Wheat allotments restricting area planted to wheat have encouraged the production of barley in recent years. The relative importance of crops produced in the area by harvested area and value percentiles is clearly shown in table 20 for each of the three counties and their total area.

Production of 13 principal crops in the three principal counties of the area for the six years 1952 to 1957 is shown in table 29 in the appendix. Yield production in units and value of the crop is given along with areas harvested and yeilds per harvested acre on irrigated and non-irrigated land. Relative area and value of irrigated and non-irrigated crops are shown in table 21.

Table 23.--Areas planted and harvested, yields, production, prices and returns per acre for wheat in Blaine, Phillips, and Valley Counties, Milk River Area, Montana, 1919-57

Year	Area planted acres	Area harvested acres	Yield per planted acre bu.	Yield per harvested acre bu.	Yield per harvested acre: Plus or minus 10-bu. break-even yield bu.	Production bu.	Price per bushel dol.	Return per harvested acre dol.
1919	315,600	181,200	2.3	4.0	-6.0	720,400	2.38	9.46
1920	310,000	293,000	7.7	7.8	-2.2	2,282,000	1.31	10.20
1921	286,500	257,000	12.1	13.5	+3.5	3,471,100	.88	11.89
1922	301,800	300,000	14.1	14.2	+4.2	4,262,000	.92	13.07
1923	294,700	283,800	12.6	13.1	+3.1	3,730,800	.85	11.17
1924	273,500	273,300	16.6	16.6	+6.6	4,544,900	1.27	21.12
1925	305,200	288,100	9.9	10.6	+.8	3,041,200	1.43	15.10
1926	294,900	291,000	12.5	12.7	+2.7	3,686,000	1.16	14.69
1927	382,000	381,000	20.8	20.8	+10.8	7,940,500	1.00	20.84
1928	498,800	496,400	19.4	19.6	+9.8	9,721,900	.87	17.04
1929	469,700	444,000	7.0	7.4	-2.6	3,288,600	1.02	7.55
1930	545,200	513,800	5.4	5.8	-4.2	2,977,300	.61	3.53
1931	422,800	212,900	2.3	4.5	-5.5	951,600	.55	2.46
1932	418,400	379,800	12.0	13.3	+3.3	5,037,600	.39	5.17
1933	403,500	337,100	5.9	7.1	-2.9	2,388,500	.66	4.68
1934	412,900	223,700	4.0	7.3	-2.7	1,635,000	.91	6.65
1935	407,400	318,600	6.7	8.6	-1.4	2,725,000	.99	8.47
1936	483,800	223,800	2.3	4.9	-5.1	1,107,600	1.28	6.33
1937	435,500	198,800	2.0	4.4	-5.6	878,900	1.05	4.64
1938	447,000	388,600	9.4	10.8	+.8	4,205,000	.52	5.63
1939	353,400	331,900	12.4	13.2	+3.2	4,373,400	.67	8.83
1940	399,200	391,800	13.5	13.7	+3.7	5,382,200	.65	8.93
1941	379,800	366,100	14.4	15.0	+5.0	5,477,300	.92	13.76
1942	327,000	320,700	23.2	23.7	+13.7	7,602,100	1.07	25.36
1943	358,200	340,900	20.7	21.8	+11.8	7,435,800	1.30	28.36
1944	410,700	398,000	17.5	18.1	+8.1	7,192,500	1.36	24.58
1945	372,200	323,100	9.6	11.0	+1.0	3,568,300	1.49	16.46
1946	418,400	400,200	9.6	10.1	+.1	4,037,400	1.90	19.17
1947	445,400	423,000	11.6	12.2	+2.2	5,176,500	2.40	29.37
1948	500,900	464,800	14.8	16.0	+6.0	7,424,100	1.94	30.99
1949	552,200	473,900	5.6	6.6	-3.4	3,113,700	1.96	12.88
1950	485,300	472,200	14.5	14.9	+4.9	7,023,800	2.02	30.05
1951	577,900	556,400	11.1	11.6	+1.6	6,435,300	2.02	23.36
1952	581,900	554,100	13.9	14.6	+4.6	8,063,300	2.01	29.25
1953	639,900	624,500	19.0	19.5	+9.5	12,189,600	2.01	39.23
1954	465,000	453,700	14.5	14.9	+4.9	6,753,500	2.16	32.15
1955	495,700	486,200	20.3	20.7	+10.7	10,082,300	1.99	41.27
1956	579,500	539,400	14.4	15.5	+5.5	8,369,600	1.90	29.48
1957	488,700	467,100	14.1	14.7	+4.7	6,875,800	1.94	28.56
39-yr. avg.	424,115	376,254	11.8	13.3	+3.3	5,004,421	1.33	17.70

Compiled from Montana Agricultural Statistics, Montana Department of Agriculture and U. S. Department of Agriculture, Helena, Montana, December 1956 and 1958.

Wheat, the leading crop in the area, is produced almost exclusively on non-irrigated land, as shown by the following percentile comparisons:

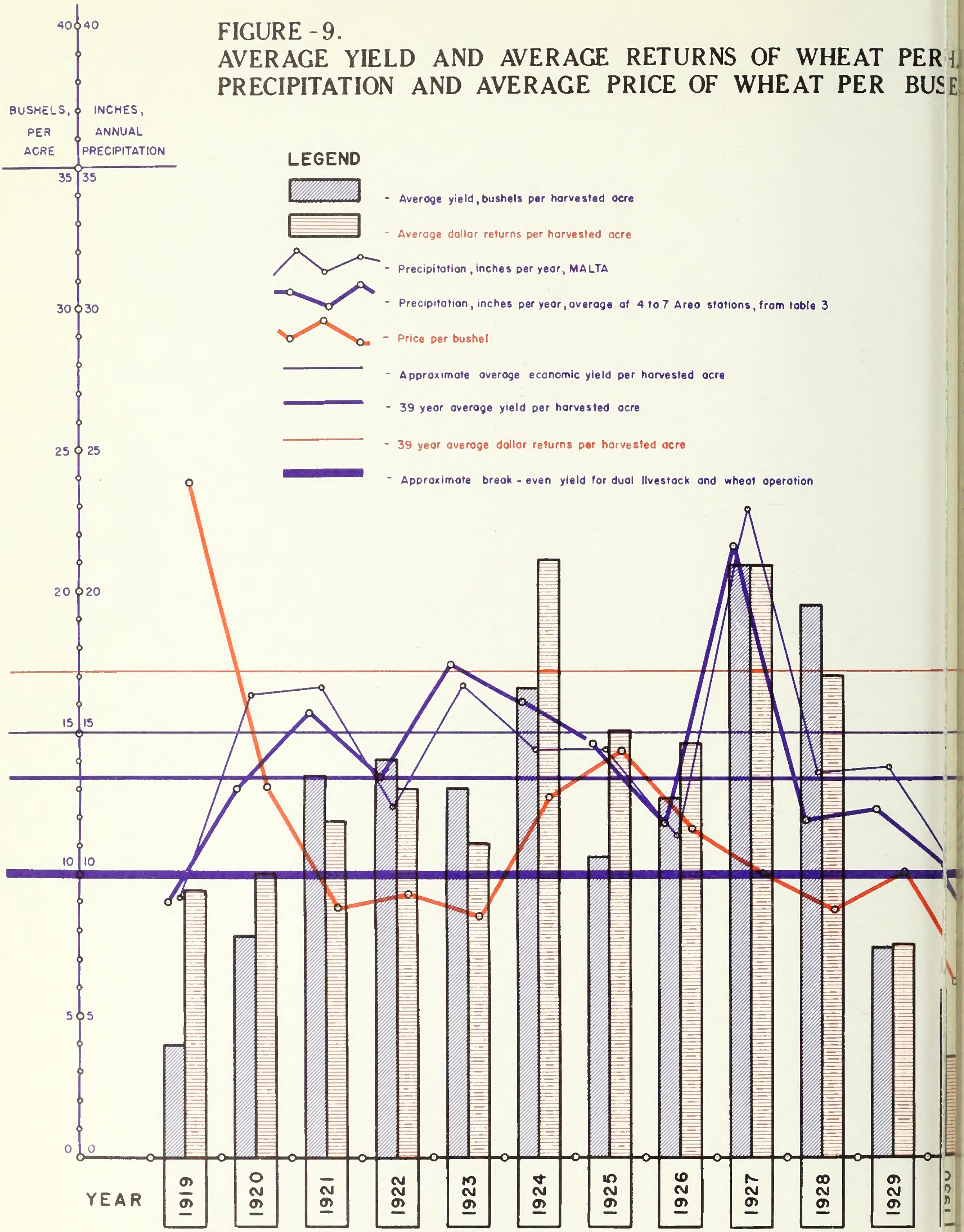
	Irrigated wheat		Non-irrigated wheat	
Year	harv. area	production	harv. area	production
1955	1.79	2.33	98.21	97.67
1956	2.61	5.31	97.39	94.69
1957	2.25	3.91	97.75	96.09

Planted area of wheat has varied from 273,500 acres in 1924 to 639,900 acres in 1953 in the 39-year period, 1919 to 1957, as shown in table 23. Planted area average is 424,115 acres for the 39 years. Harvested area averaged 376,254 acres with extremes of 181,200 acres in 1919 and 624,500 acres in 1953.

Wheat yields per planted acre have varied from two bushels in 1937 to 23.2 bushels in 1942, with a weighted average of 11.8 bushels for the 39 years. Yields per harvested acre have ranged from four bushels in 1919 to 23.7 in 1942, with a weighted average of 13.3 bushels. Area not harvested usually does not represent a total loss, as grain plantings too poor to harvest for grain are grazed or cut for hay. In years favorable for production, most of the planted area is harvested, as in 1928, with 498,800 acres planted and 496,400 acres harvested. In unfavorable production years, harvesting falls to about half of planting, as in 1919, with 315,600 acres planted and only 181,200 acres harvested. In 1936 and 1937, less than half was harvested, 223,800 acres harvested out of 483,800 acres planted in 1936, and 198,800 acres harvested from 435,500 planted in 1937. Since that time, the harvesting ratio has been high, largely due to favorable precipitation and high prices.

Ten bushels per harvested acre has been selected as an average break-even yield for an economic unit of the dual beef cattle-wheat ranch operation. Twelve bushels per harvested acre is considered to be an average break-even yield for an exclusively wheat farming enterprise in the area. Any break-even figure is subject to wide variations of costs, prices and management efficiency. With a dual operation, seven bushels per acre is considered to be a minimum yield to pay for harvesting. If the crop promises less, it is best to feed it off. In case wild oats invade a wheat field, it is cut for hay to control the pest, as wild oats reduce the crop 10 bushels per acre. Fifteen bushels per harvested acre is considered to be the economic return minimum necessary to sustain a family on an economic wheat-farming unit with good management.

FIGURE - 9.
AVERAGE YIELD AND AVERAGE RETURNS OF WHEAT PER PRECIPITATION AND AVERAGE PRICE OF WHEAT PER BUS



Data for yield has been calculated from area and production figures for Blaine, Phillips and Valley Counties as given in Montana Agricultura

Average wheat yield per harvested acre over the 39-year period is 13.3 bushels, 1.7 bushels less than an economic return minimum, yield and only 1.3 bushels more than the break-even yield for a wheat-farming enterprise. The break-even yield of 10 bushels per harvested acre for a dual beef cattle-wheat operation has been used as a comparative with annual yields in table 23. Average yields were below this figure for 11 years and exceeded it 28 years out of the 39-year period, 1919-1957. Yields per planted acre have ranged from 2 bushels to 23.2 bushels during the 39 years, with an average of 11.8 bushels. Yields per harvested acre have varied from 4 to 23.7 bushels per acre. Total production of the three counties during the 39 years has varied from 720,400 bushels in 1919 to 12,189,600 bushels in 1953, with an average of 5,004,421 bushels. Price per bushel has varied from 39 cents to $2.40, with an average of $1.33. Returns per harvested acre ranged from $2.46 in 1931 to $41.27 in 1955, with a 39-year average of $17.40.

Winter wheat is frequently planted primarily for winter or early spring pasture, a grain crop being of secondary importance. Winter wheat is very useful and valuable for this purpose and is dually advantageous to both livestock management and range management. Considering the three-year average, 1955-1957, in the three-county area, only 75 percent of the winter wheat planted was harvested, while 97 percent of the planted area of spring wheat was harvested. Winter wheat is grown exclusively as a non-irrigated crop in the area. Wheat and other small grains are largely used under irrigation as starting or "nurse" crops for alfalfa, clovers, and grass mixtures.

Comparisons of yields and returns of spring and winter wheat for the three-county area for the average of the years 1955, 1956, and 1957 are as follows:

	Average yield 3-year period bushels per acre		Average dollar returns per acre	
	Planted	Harvested	Planted	Harvested
Spring	16.05	16.52	31.46	32.37
Winter	17.70	23.59	32.52	43.33
All wheat	16.19	16.97	31.55	33.07

Recent planted and harvested areas and production of wheat for the combined area of Blaine, Phillips, and Valley Counties are presented below. These data show the relative importance of spring and winter wheat in the area.

Planting season	Planted (acres)	Harvested (acres)	Yield (bushels)	Value (dollars)
1955				
Spring	452,500	445,700	8,992,200	17,835,800
Winter	43,900	40,500	1,090,100	2,025,800
Total	496,400	486,200	10,082,300	19,861,600
1956				
Spring	540,800	526,600	8,135,400	15,980,700
Winter	38,700	12,800	234,200	434,200
Total	579,500	539,400	8,369,600	16,414,900
1957				
Spring	444,600	425,300	5,956,900	11,425,200
Winter	44,100	41,800	918,900	1,660,500
Total	488,700	467,100	6,875,800	13,085,700
Average				
Spring	479,300	465,867	7,694,833	15,080,567
Winter	42,233	31,700	747,733	1,373,500
Total	521,533	497,567	8,442,566	16,454,067

Winter wheat was 8.1 percent of the area planted to wheat for the average of the three-year period and 6.4 percent of the harvested wheat area. Winter wheat produced 8.86 percent of the average crop in bushels and 8.35 percent of the value for the three-county area. Winter wheat has several advantages where it can be grown successfully. Weather and soil conditions are virtually always suitable for planting, contrasting with doubtful planting conditions in the spring, with possible planting too late for a good crop. Winter wheat gets full advantage of moisture stored in the soil and winter snow. Winwheat has plenty of opportunity to "stool out" while spring wheat frequently does not. Winter wheat often provides pasture when it is most valuable.

The following tabulation shows the average protein content and premiums paid for wheat produced in the area for the crop years 1952 to 1957:

County	Protein content average	Price premium per bushel (dollars)	Average price per bushel (dollars)
1952			
Blaine	14.8	.06	1.94
Phillips	15.0	.08	1.96
Valley	14.6	.04	1.92
1953			
Blaine	13.0	.12	1.94
Phillips	15.4	.333	2.16
Valley	14.6	.247	2.07
1954			
Blaine	15.2	.36	2.34
Phillips	15.5	.40	2.38
Valley	15.5	.40	2.38
1955			
Blaine	14.3	.13	1.93
Phillips	15.6	.23	2.03
Valley	15.3	.20	2.00
1956			
Blaine	14.7	.092	1.89
Phillips	15.9	.196	1.99
Valley	15.4	.148	1.94
1957			
Blaine	15.3	.056	1.97
Phillips	16.3	.084	1.99
Valley	16.3	.084	1.99

The prices shown above are the yearlong averages at Great Falls, Montana, prices plus premiums. Actual prices are higher, as area shipping points are main-line points with prices above Great Falls. Prices listed may approximate net on farm harvest value. This information was compiled from Montana Agricultural Statistics, Volumes VI and VII, December 1956 and 1958.

Climatic conditions in the area usually favor the production of high-protein content in spring wheat. Premiums are usually paid for wheat containing 12 percent or more protein. Premiums for wheat containing 18 percent or more protein have amounted to one-third of the selling price. Protein content of wheat produced in the area has been sufficient to pay considerable amounts in premiums and has been an economic factor of importance. Production of high-protein wheat of excellent milling quality has been sacrificed for other considerations in the selection of varieties for planting. Disease resistance and high yield have been the principal factors in selecting wheat varieties for plantings.

Premiums paid for protein vary with the volume of wheat produced and available with high-protein content. Demand for high protein wheat, milling needs, and transit requirements of millers also affect premiums and price. The area is favorably situated midway between the large-volume Pacific Coast and Minneapolis flour millers. Opening of the St. Lawrence Seaway will afford an opportunity for export via the Atlantic. High-protein content is also of value in blending feeds. Demand for high-protein wheat is decreasing at present with the emphasis on soft breads and pastries. High-protein wheat is of especial value in producing hard-crust breads such as French and Italian breads and hard-crust rolls. Soft breads and pastries are usually produced from low-protein wheats, especially winter wheat. High-protein export wheat is largely furnished by Canada, our relatively limited production usually being utilized domestically.

Barley production has been increasing in the area since 1938, plantings growing from 5,200 acres to 139,500 acres in 1957, largely the result of wheat acreage allotments. Harvested area has increased from 4,800 acres to 129,700 acres. Production has increased from 126,600 bushels to 3,066,900 bushels. Yields have varied from 10.5 to 28.3 bushels per planted acre and from 14.3 to 28.6 bushels per harvested acre in the 20 years, 1938 to 1957.

Oats are usually produced for feed in the area, principally for hay, the acreage harvested for grain usually being less than half of the planted area. Oats are frequently used as a nurse crop for alfalfa on irrigated lands. Area of oats harvested on irrigated land in the three counties decreased from 10,400 acres in 1952 to 4,400 acres in 1957. Plantings declined from 93,500 acres in 1952 to 42,000 acres in 1956, with 46,900 acres being planted in 1957. Area harvested from these plantings declined from 40,200 acres in 1952 to 14,300 acres in 1956, with 19,800 acres harvested for grain in 1957. Yields per harvested acre varied from 35 bushels to 50 bushels on irrigated land and from 23 to 31 bushels on non-irrigated land. Production declined from 1,408,200 bushels valued at $1,109,000 in 1952 to 429,200 bushels valued at $218,900 in 1956. Production in 1957 was 518,500 bushels valued at $249,400.

Corn is the fourth most important grain in the area. Its culture on non-irrigated land doubled from 3,400 acres harvested in 1952 to 6,800 acres harvested in 1957. Yields varied from 11.2 bushels per acre in 1952 to 17.2 bushels per acre in 1956. Corn is frequently grown in strips alternating with wheat instead of fallow strips, and produces grain and livestock feed while keeping the land free from weeds. Some farmers in the area believe that corn is superior to fallow in the alternate strips for continued production of wheat.

Rye is relatively unimportant as a grain crop, most of it being pastured. Plantings varied from 3,100 acres in 1952 to 5,300 acres in 1955, while the area harvested was only 700 acres in 1956 and 1957 to 2,000 acres in 1954. Yields ranged from 9.1 to 14.7 bushels per harvested acre.

Hay is second to grain as a crop on non-irrigated land. Wild hay is the principal type with wide variations in area cut and production depending both upon the growth of the native grasses on meadows and upland and also upon the need for, and value of, hay. In recent years, wild hay cutting on non-irrigated land in the area has varied from 21,500 acres in 1957 to 62,700 acres in 1953. Average yields have varied from .53 ton per acre in 1952 to .74 ton per acre in 1955. Culture of alfalfa for hay on dry land increased from 13,100 acres in 1953 to 26,600 acres in 1955. Yields have varied from .82 ton per acre to 1.38 tons per acre on the average. Considerable amounts of small grains are also cut for hay. Area harvested of all hay grown on non-irrigated land in the area has varied from 84,600 acres in 1957 to 149,600 acres in 1955 during the period 1952-1957. Yields during that time varied from .71 ton per acre in 1956 to .92 ton in 1955.

Minor uses of non-irrigated cropland in the area are for flax, alfalfa seed, potatoes, and crested wheatgrass. Flax was harvested from 700 acres of dry-farmed land in 1952 and from 10,500 acres in 1956. In the six-year period 1952-1957, yields varied from 4.9 bushels to 9.0 bushels per acre. Alfalfa seed was produced on 1,200 to 6,200 acres in the six years, with yields ranging from 53 to 86 pounds per acre. Potatoes are a valuable crop grown on a small acreage of dry-farmed land in the area. Extent of harvested area varied from 80 to 150 acres, with yields ranging from 28.8 to 55.3 hundred-pound sacks per acre. Parts of extensive stands of crested wheatgrass are harvested for seed each year, the area depending upon volume and quality of the seed, price, and demand. Area harvested varied from 100 to 700 acres, with yields of 40 to 140 pounds per acre.

Woodland and Forest-land Use

Only 130,798 acres, or 1.4 percent of the area, is considered to be forest-land. Most of this is in the Little Rocky Mountains in the Lewis and Clark National Forest or adjoining it within the Fort Belknap Indian Reservation. Exclusive of the Little Rocky Mountain stands, timber is mostly open woodland stands in rough country or in stringers along watercourses. In the Missouri River breaks, woodland stands are open scrub Ponderosa pine, usually with Rocky-Mountain juniper and considerable areas of juniper alone. Trees there only grow to post and pole size. Few trees in the area grow to saw timber size, largely due to limitations of moisture and soil. Timber in the area is used for posts, poles, and a limited supply of low-quality saw timber to supply local demand.

When mining was active in the area, local timber was cut for mine timbers and props. If mining recurs, local timber will probably be used again for this purpose. During homesteading and small unit operation days, farmers and ranchers cut posts from local timber by choice, economy, and due to lack of other feasible supply. Now farmers and ranchers purchase steel posts, treated timber posts, or juniper posts trucked into the area from Texas. These sources are more convenient and usually of lower cost than cutting local timber posts. Large amounts of wood were formerly cut for fuel, but now heating fuels are natural gas and fuel oil from petroleum.

Woodland stands in the area are not of sufficient value for timber to merit their retention solely for forest management, their principal values being watershed protection and game habitat. Their low-economic value under private ownership and their multiple-use values of watershed, wildlife and recreation, merit their retention and administration in public ownership.

Recreational Land Use

Fort Peck Lake and its shorelands are the primary recreation attraction of the area. With the increasing national interest in boating, this lake, with its 140-mile length, 1,600 miles in shoreline, and 245,000 acres of water surface, is rapidly increasing in recreational use. New docks and cabins develop almost daily during the summer. Two major recreation areas are located on the north shore of the lake, at the dam and at the Pines. Virtually all types of day- and extended-use accommodations are available here for individuals and parties. Large-group accommodations are available at the Pines. Access roads to the lake are available to several points. Montana State Highway 24 crosses on top of the dam southward from Canada and Glasgow to Montana Highway 20. Montana Highway 19 crosses on a new bridge near the upper end of Fort Peck Lake on the route from Malta to Grassrange and U. S. Highway 87. Three improved roads lead to the north shore in Valley County. Twelve roads lead to the north shore in Phillips County, most of them being primitive roads for the last few miles.

Fort Peck Lake furnishes all water and shore sports on a grand scale, including excellent fishing at all seasons for 30 species of fish. Original purposes of the dam, in order of importance, were navigation, irrigation, power, and flood control. With recent development of several large dams and reservoirs downstream, the importance of the functions of Fort Peck Lake has been shifted to power and recreation.

Fort Peck Dam alone is a sight-seeing "must" for all tourists who come anywhere near the vicinity. This is the largest earth-fill dam in the world, nearly four miles long with a maximum width of more than half a mile and height of 243 feet. The 125,628,288 cubic yards of fill provide storage for 19,400,000 acre-feet of water supplied by a drainage area of 57,725 square miles, much of which is high in the Rocky Mountains.

Fort Peck Game Range is an important wildlife recreational area in the breaks of the Missouri River along the shores of Fort Peck Lake. It includes 392,816 acres within the area. Most of the Game Range is rugged, scenic, colorful badlands, with considerable scrub pine, juniper, browse, and grass cover. The Game Range extends westward 108 miles from Fort Peck Dam in a band of land varying from slight distances to 12 miles north of the lake, as shown on maps 4 and 5 with this report. The Game Range is administered by the Bureau of Sports Fisheries and Wildlife, of the Fish and Wildlife Service, and the Bureau of Land Management, under a joint agreement. The Game Range provides habitat for deer, antelope, elk, and upland game birds, especially grouse. The Game Range facilitates access to Fort Peck Lake and helps to protect the immediate lake watershed.

Nelson Reservoir also provides water sports, boating, fishing, and cabin sites. It is largely used by local residents. Bowdoin Wildlife Refuge is utilized by many tourists because U. S. Highway 2 passes through it. Observation stations along the highway permit travelers the opportunity to observe and photograph antelope, ducks, geese, and swans. There are numerous smaller lakes in the area which provide fishing and waterfowl hunting. Several of these lakes are large enough for boating and all types of water sports.

The area provides excellent big game hunting for antelope and deer. Waterfowl hunting is also good. Recreational and sight-seeing features of the area are frequently utilized by tourists passing through the area to or from Canada, Glacier and Yellowstone National Parks, and Pacific Coast points.

Indian Land Use

Fort Belknap Indian Reservation, with an area of 622,917 acres, is completely within the area. This reservation is mostly grazing land with a considerable area of cultivated land and some forest-land in the Little Rockies. Irrigated land has been developed along Peoples Creek and part of the Milk River Irrigation Project is within this reservation. Most of the irrigated land is heavy soil with native bluestem wheatgrass (bluejoint) hay. The Bureau of Indian Affairs has published several reports for this reservation. Information may be obtained from the Superintendent, Fort Belknap Indian Agency, Harlem, Montana.

There are 281,192 acres of the western part of the Fort Peck Indian Reservation within the area. This is mostly grazing land, with considerable cultivated land. The Big Porcupine Irrigation Unit of the Indian Irrigation Service is just north of the Missouri River in this part of the reservation. There are other smaller areas of irrigated land. Information relative to land use may be obtained from the Superintendent, Fort Peck Indian Agency, Poplar, Montana.

Scattered Chippewa Indian allotments include 84,069 acres in the area. Nearly all of these allotments are grazing land. There are 19,872 acres of these allotments inside of the Area Classification portion of the area. Surface and soil resources of these allotments are shown on the five maps with this report. Balance of the scattered Indian allotments, 64,197 acres, is located in the Isolated Tract Classification parts of the area. Location of each Indian allotment is shown as IA in black on the tract on each of the five maps with this report. They are mostly located in northern Blaine County and are shown on map one.

LANDOWNERSHIP

Land area of the Milk River Area is 9,102,996 acres, or 14,223 square miles. Landownership of the area is 50 percent private, 43 percent Federal, and 7 percent State. Privately owned land is held by individuals, groups, and corporations. Landownership within the area has been compiled by types by counties inside and outside of Malta Grazing District, as shown in table 24. Landownership has also been compiled by types for the three study areas, the two Indian Reservations, and the Lewis and Clark National Forest within the area, as presented in table 25. This landownership distribution is shown graphically in figure 10. Landownership of each section or subdivision thereof is shown on the five maps with this report.

Federal Landownership and Administration

Federal lands of all types cover 3,800,083 acres, or 43 percent, of the area. Within the Area Classification part of the area there are 2,233,993 acres of Federal land, 53 percent of the total. Federal landownership by types and administering agency in the area and in the Area Classification portion is as follows:

Type of landownership	Administering agency	Milk River Area acres	Milk River Area percent	Area Classification portion acres	Area Classification portion percent
Public Domain	Bureau of Land Management	1,999,911	51.54	1,577,562	70.62
Withdrawals	Bureau of Land Management	17,301	.45	16,923	.76
Land Utilization Project	Bureau of Land Management	933,466	24.06	561,075	25.11
Sub-total	Bureau of Land Management	2,941,772	75.82	2,155,560	96.49
Withdrawal & purchase	Bureau of Reclamation	55,258	1.42	38,889	1.74
Military purchase	Corps of Engineers	31,203	.80	478	.02
Indian Trust (Tribal)	Bureau of Indian Affairs	151,003	3.89	-	-
Indian Trust (Allotted)	Bureau of Indian Affairs	643,840	16.59	19,872	.89
Sub-total	Bureau of Indian Affairs	794,843	20.49	19,872	.89
National Forest	Lewis & Clark National Forest	27,862	.72	-	-
Other Federal	Mostly Fish & Wildlife Service	20,239	.52	19,194	.86
Total Federal		3,880,083	100.00	2,233,993	100.00

There are 8,906 acres of Land Utilization Project lands in the area that are located within Indian reservations, which are not administered by the Bureau of Land Management. These lands are .23 percent of the total Federal lands in the area.

Lands Administered by the Bureau of Land Management

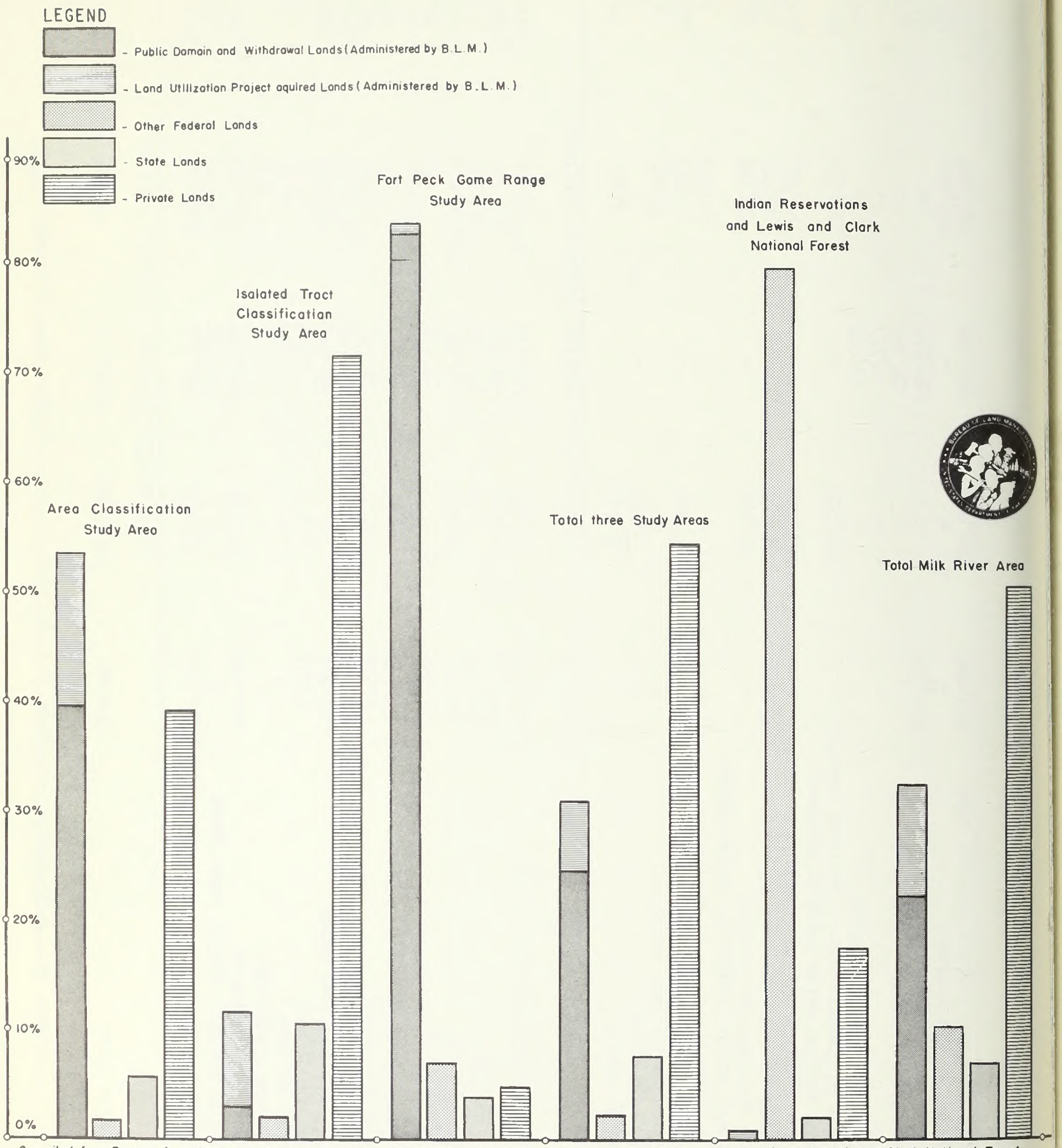
Public Domain

There are 1,999,911 acres of public domain and 17,301 acres of withdrawals therefrom in the area. Public domain in the Area Classification portion is 1,577,562 acres, or 79 percent of all in the area. Withdrawals in that portion are 16,923 acres, 98 percent of the total. Public domain is largely rough badlands in the breaks of the Missouri River north of Fort Peck Lake and rough lands on divides in the area. It is remnant land in the area which was not suitable for homesteading. Distribution of the public domain is shown on the five maps with this report, being designated by the letter "V" in each section or subdivision.

Table 24.--Landownership classes by counties in the Milk River Area, Montana, 1954

Landownership class	Blaine	Chouteau	Phillips	Valley	Total
	Inside Malta Grazing District, Montana				
Vacant public domain	264,185	13,661	711,930	648,142	1,637,918
Vacant public domain - within Game Range	-	-	207,687	117,020	324,707
Total vacant public domain	264,185	13,661	919,617	765,162	1,962,625
Stock driveway withdrawal	-	-	-	640	640
Public water reserve	-	-	479	1,114	1,593
Power site withdrawal	8,073	-	940	-	9,013
Land Utilization Project lands	191,918	-	359,274	367,730	918,922
Total lands administered by BLM	464,176	13,661	1,280,310	1,134,646	2,892,793
Reclamation withdrawal	4,544	-	45,457	2,670	52,671
Indian allotment	28,022	-	52,063	200	80,285
Military purchase	-	-	15,560	15,643	31,203
Other Federal lands	1,021	-	18,769	446	20,236
Total Federal land	497,763	13,661	1,412,159	1,156,605	3,077,188
State of Montana	184,176	707	190,462	178,500	553,845
Private	1,518,219	6,639	1,562,543	762,539	3,849,940
Total Malta Grazing District lands	2,200,158	21,007	3,165,164	2,094,644	7,480,973
	Outside Malta Grazing District, Montana				
Vacant public domain	-	34,940	-	2,346	37,286
Power site withdrawal	-	6,055	-	-	6,055
Land Utilization Project lands	-	-	-	5,638	5,638
Total lands administered by BLM	-	40,995	-	7,984	48,979
Indian allotment	-	-	-	3,784	3,784
Total Federal lands outside of Indian Reservations and National Forests	-	40,995	-	11,768	52,763
State of Montana	-	36,158	-	34,908	71,066
Private	-	267,869	-	295,941	563,810
Total lands outside Malta Grazing District exclusive of Reservations & National Forests	-	345,022	-	342,617	687,639
Lewis and Clark National Forest	-	-	29,975	-	29,975
Private	-	-	2,113	-	2,113
National Forest land	-	-	27,862	-	27,862
Fort Belknap Indian Reservation	500,500	-	122,417	-	622,917
Fort Peck Indian Reservation	-	-	-	281,492	281,492
Total lands outside of Malta Grazing Dist.	500,500	345,022	152,392	624,109	1,622,023
Grand Total - All lands in Milk River Area	2,700,658	366,029	3,317,556	2,718,753	9,102,996

FIGURE 10
LANDOWNERSHIP IN PARTS OF THE MILK RIVER AREA, MONTANA, 1954



Compiled from Bureau of Land Management records, Montana Land Office 1954; Fort Belknap and Fort Peck Indian Agencies and Lewis and Clark National Forest records, 1959.

B.L.M., AREA 3, DENVER DRAFTING OFFICE J.L.K. 1959.

Table 25.--Landownership in study areas, Indian Reservations and the Lewis and Clark National Forest in the Milk River Area, Montana, 1954

	Milk River Area Study Areas				Indian Reservations			
Landownership	Area Classification	Isolated Tracts	Game Range	Total study areas	Fort Belknap	Part of Fort Peck in area	Lewis and Clark Natl. Forest	Total Milk River area
Vacant public domain	1,577,562	97,642	324,707	1,999,911	-	-	-	1,999,911
Stock driveway withdrawal	640	-	-	640	-	-	-	640
Public water reserve	1,593	-	-	1,593	-	-	-	1,593
Power site withdrawal	14,690	378	-	15,068	-	-	-	15,068
Land Utilization Project	561,075	359,576	3,909	924,560	591	8,315	-	933,466
Sub-total administered by B. L. M.	2,155,560	457,596	328,616	2,941,772	-	-	-	2,941,772
Reclamation: withdrawal	38,889	13,782	-	52,671	-	-	-	52,671
purchase	-	-	-	-	2,587	-	-	2,587
Military purchase	478	3,197	27,528	31,203	-	-	-	31,203
Other Federal	19,194	1,042	-	20,236	3	-	-	20,239
Indian: tribal	-	-	-	-	122,361	28,642	-	151,003
allotted	19,872	64,197	-	84,069	473,027	86,744	-	643,840
Sub-total Indian Trust land	19,872	64,197	-	84,069	595,388	115,386	-	794,843
National Forest	-	-	-	-	-	-	27,862	27,862
Total Federal	2,233,993	539,814	356,144	3,129,951	598,569	123,701	27,862	3,880,083
State of Montana	233,131	376,149	15,631	624,911	19,670	231	-	644,812
Private (Fee patent)	1,556,091	2,836,618	21,041	4,413,750	4,678	157,560	2,113	4,578,101
Total	4,023,215	3,752,581	392,816	8,168,612	622,917	281,492	29,975	9,102,996

Compiled from Bureau of Land Management records, Montana Land Office, 1954; Fort Belknap and Fort Peck Indian Agencies, and Lewis and Clark National Forest records, 1959. Fort Belknap Indian Reservation figures include 2388 acres of Agency Reserve in Indian Tribal; and 143 acres Hays and Lodgepole townsites as private (Fee patent).

Public domain within the Area Classification and Game Range portions of the area was examined along with adjoining lands of other ownerships. The results of this classification inventory are shown on the five maps with this report. Public domain lands within the Isolated Tract Classification portions were examined as separate tracts, each tract being reported on Land Classification Form 4-1090. A copy of this form is shown in Appendix B. Location of each tract is shown within the Isolated Tract Classification Areas on the five maps with this report. An abstract of the classification of each isolated tract is presented on a line of table 27. This one-line abstract shows the area, description, location, general land characteristics, recommended stocking rate in animal unit months, present land use, land use capability, principal suitability and proposed management of each separate tract. There are 919 separate tracts covering 97,642 acres in the Isolated Tract Classification portion of the area, as listed in table 27. Land classification forms for these tracts are on file in the Montana State Office of the Bureau of Land Management, Billings, Montana.

Land Utilization Project Acquired Lands

Milk River Area contains 933,466 acres of Land Utilization Project lands. The Bureau of Land Management administers 924,560 acres of these lands, and 8,906 acres within Fort Peck and Fort Belknap Indian Reservations are under the administration of the Bureau of Indian Affairs. This land is also referred to as "submarginal land" or "Title III land." Lands submarginal in quality or within non-economic units were purchased by the Federal government in the drought years of the 1930's for relief and conservation purposes. These lands were purchased under Title III of the Bankhead Jones Act of 1937. These lands are second in amount of Federal lands in the area. They are utilized almost exclusively for range forage. Some hay and crested wheatgrass seed are harvested from these lands.

Administration of Land Utilization Project lands in Montana was transferred to the Bureau of Land Management from the Forest Service by Executive Order No. 10787 of November 7, 1958. These lands were administered by the Soil Conservation Service for many years prior to the transfer of administration to the Forest Service. Location of Land Utilization Project lands is shown on the five maps with this report, and on the Milk River Area Public Domain Map with the preliminary report of the area. This land is scattered over Phillips County and in the part of Valley County within the area. In Blaine County, this land is located north of Milk River.

Indian Trust Lands

There are 794,843 acres of Indian Trust lands in the area. These are Indian lands held in Trust Title by the Federal government. Indian Tribal Trust lands cover 151,003 acres and Indian Allotted Trust land comprise 643,840 acres. These lands are on the Fort Belknap Indian Reservation, with 595,388 acres; on the Fort Peck Indian Reservation, 115,386 acres; and 84,069 acres in scattered Chippewa Indian allotments outside of the reservations. Types of landownership on each of the Indian reservations within the area are given in table 25. Individual Indian allotments outside of the reservations are nearly all in northern Blaine and Phillips Counties. These allotments are mostly in the Isolated Tract Classification part of the area, 64,197 acres being there, and 19,872 acres being located in the Area Classification study area.

Other Federal Lands

The Bureau of Reclamation administers 55,258 acres in the area. There are 52,671 acres of Reclamation Withdrawal, designated "RW" on the maps with this report, and 2,587 acres of purchased land on the Fort Belknap Indian Reservation. Corps of Engineers, U. S. Army, Department of Defense, administers 31,203 acres of land in the area, purchased for the development of Fort Peck Dam and Lake. This land is shown as "MP" on maps 4 and 5 with this report. National Forest lands administered by the Forest Service, of the Department of Agriculture, are 27,862 acres, all of which is in the Lewis and Clark National Forest in the Little Rocky Mountains in southwestern Phillips County. Fish and Wildlife Service has three refuges in the area: Bowdoin National Wildlife Refuge, 15,437 acres; Black Coulee Migratory Waterfowl Refuge, 1,480 acres; and Hewitt Lake Migratory Waterfowl Refuge, 1,681 acres; a total of 18,598 acres. Part of this area is leased or under agreement, amounting to 5,621 acres. The balance, 12,977 acres, is owned or withdrawn as a reservation. National Park Service administers Chief Joseph National Monument in Blaine County, 160 acres.

PROBLEMS

Problems of the area are complex and interrelated. An administrative problem properly resolved may lead to range and watershed improvement. Construction of improvements may lead to benefits far beyond the solution of the immediate problem. Land use, landownership, and land management problems are necessarily connected.

Multiple Administration of Public Lands

Public lands in the Milk River Area are administered by the Bureau of Land Management, the United States Forest Service, and the United States Fish and Wildlife Service, the Bureau of Reclamation, the Army Engineers Corps, the Bureau of Indian Affairs, and the State of Montana. Total amounts of land by landownership status in the area are shown in tables 24 and 25. In some cases the variety of administration is caused by the fact that the lands involved present specialized problems and need specialized programs. This is the case with the migratory waterfowl refuges (Bowdoin, Black Coulee, and Hewitt Lake), which are administered by the Fish and Wildlife Service for the primary purpose of providing nesting sites for waterfowl. Certain land withdrawn for reclamation also falls into this category.

There are cases in which land suitable only for grazing is being managed by agencies whose primary function is not the administration of grazing land. This applies to much of the Reclamation Withdrawal and Military Purchase lands. The intermingling of State land, Military Purchase, or Reclamation Withdrawal with lands administered by the Bureau of Land Management is not only a problem in efficient land administration, but is also a hardship to the land user. Varying fees and rentals are charged, and each agency must follow its own specific regulations. There is also some land which has been withdrawn from entry for the specific purpose for which it is no longer needed. This applies to all the Stock Driveway Withdrawal in the area, as well as to certain Power Site Withdrawal lands.

Land Use and Administration

Use of land in the area for non-irrigated crops, principally wheat, has been steadily increasing. Climate in the area is both marginal and variable for the production of non-irrigated crops. Sites within the area vary greatly in quality for use for non-irrigated crops. Production of small grain, especially wheat, has been stimulated by high prices and reasonably good production and returns for nearly twenty years. New methods and efficient large-scale operating machinery, permitting low costs per acre with little labor, have also contributed to increasing use of land in the area for non-irrigated crops. Much of this use has been encouraged by artificial stimulation in the form of price supports. With more area grassland being plowed up each year and mounting surpluses of wheat and other grains, the questions of when and where to stop become of increasing importance.

Conversion of grassland to non-irrigated cropland is relatively simple and usually profitable. Plowing, planting, and harvesting under necessary ownership-operating agreements or changes are all that is required. The reverse, from cropland to grassland, is not so easy nor so pleasant. If the past is any teacher, there is little or no inducement to the farming operator to convert to grassland. The cropland operator usually stops farming the land when it becomes unprofitable to do so for several years. By that time he has usually become insolvent and frequently has left the area. Returning the abandoned cropland to grassland satisfactory for good grazing usually involves several years. Expensive reseeding and the allowance of two or three years to establish a good stand with strictly limited use during establishment are desirable under most conditions.

At the present time there is still some land in the area which could be utilized for non-irrigated crops. Some of this land is better suited to this use than lands which are now being cultivated, as considered in detail in the land use section. Part of this land which is well suited to cropland use is Land Utilization Project land. Definite standards of land capability should be established within the area by the Department of Agriculture. Any form of allotment, price support, or encouragement to produce within the area should be strictly limited to those lands which are definitely suited to farming. Such adapted land should be used with good conservation management. Land Use Project lands which are well suited to cropping should be exchanged for lands now being farmed which are poorly suited to that use. These poorer cultivated lands should be returned to grass. It is believed that such exchange would be feasible under the Bankhead-Jones Act. Total area farmed would be reduced and total production of farmland would be decreased, but production costs would be lowered and profits would be increased.

Public Domain

Grazing and watershed are the principal uses for the public domain land in the area. Recreation, wildlife habitat, and crop production are additional present and potential uses. Crop production in trespass on public domain is minor, only 1,500 acres being discovered at the time of the surveys. Recreational use of the vacant public domain is largely limited to hunting. There is as yet little conflict between this and other uses. It must be recognized, however, that as population and leisure time increase, the pressure on public lands for recreational use is certain to increase. Provision for this use must be taken into consideration in planning the development and disposition of the public domain.

Concentration of vacant public domain varies widely throughout the area. In the Isolated Tract study areas, vacant public domain consists almost entirely of scattered tracts with limited multiple-use value which do not contribute much to public problems. In the Area Classification study areas, most of the vacant public domain consists of much larger tracts. Much of this land has multiple-use value for watershed, wildlife habitat, and recreation, as well as for grazing. In parts of the Area Classification study area, particularly the Willow Creek and Missouri River drainage areas discussed previously, there is high vulnerability to erosion, and relatively little forage value. Continued Federal management in such areas is desirable, both to provide the capital for needed erosion-control structures and to properly maintain present uses for stable livestock operations, watershed, recreation, and game range. Areas of extremely low carrying capacity for livestock are generally better adapted for Federal, rather than private, management and ownership under existing tax structures.

There is some public domain land in the Area Classification study area which is high quality grazing land or potential cropland which has little or no multiple-use value. Lands of capability classes IV, V, VI, as shown on the five maps with this report, are equal in productivity to lands now in private ownership in the area. Some of these lands are in blocks of such size that passage to private ownership under existing laws is practically impossible. They are also blocked into present operating units and constitute an important part of the grazing lands of local livestock operators.

Although the suitability of these lands for private ownership is recognized, such a move could have serious consequences. Among these is the possible disruption of established livestock operations, and adverse effects upon a local economy called upon to make large investments in real estate. This study has not attempted to determine these effects, which would of course depend largely upon methods used for disposal. In the event transfers of blocks larger than those currently allowed are authorized in the future, further study of the problem should be undertaken.

Land Utilization Project Land

This repurchased land includes nearly one million acres in the Milk River Area and constitutes a serious problem in land use and ownership. The results of detailed studies in the Area Classification areas indicate that, for the most part, Land Utilization Project land is equal in quality to privately owned land, as shown on the maps and in table 8. Most of the Land Utilization Project land is good quality rangeland, but nearly 160,000 acres, or 28 percent, of this landownership examined within the Area Classification part of the area, is either actual or potential fair to good quality dry-farming land. The fact that this land was formerly in private ownership and was repurchased by the Federal government during a period of drought and economic distress is not necessarily proof that the land should not again go into private ownership. Much has been learned about dry-farming techniques and the maintenance of economic stability in the twenty years since the lands were purchased. In many cases the lands were in operating units which were too small to be economic.

Fort Peck Game Range

The Fort Peck Game Range was established by Executive order in 1936 for the primary purpose of providing habitat and forage for antelope and sharptail grouse. It is administered under a joint agreement between the Fish and Wildlife Service and the Bureau of Land Management. Problems have arisen due to competition for forage between wildlife and livestock, restrictions in season of use by livestock, and administrative problems due to the joint administration. The Army Engineers Corps has jurisdiction over 31,203 acres within the Game Range, mainly of land near the margin of Fort Peck Reservoir, and leases the grazing on this land. This adds to the grazing-management problem. Fort Peck Game Range was not included in the Missouri Basin field studies, but was the object of a range survey made cooperatively by the Fish and Wildlife Service and the Bureau of Land Management in 1952 and 1953. Fort Peck Game Range is an important part of the Milk River Area, with important multiple-use values of recreation, watershed, game and livestock range, and access to Fort Peck Lake.

Consolidation of Federal Landownership

Many of the problems previously considered may be solved by consolidation of ownership and control of lands of similar use in specific areas. More efficient administration and better use of the land resource will result. Proposals for the acquisition and consolidation of lands in Federal ownership are considered in this section; proposals for the disposition of Federal lands are in the following section.

Stock Driveway Withdrawal

A relatively small amount of land has been withdrawn for stock driveway purposes. Since none of this land is being used for the purpose for which it was withdrawn, or is needed for this purpose, it should be restored to vacant public domain.

Reclamation Withdrawal

There are 38,889 acres of Reclamation Withdrawal lands in the Area Classification part of the area and 13,782 acres in the Isolated Tract portions of the area. Approximately half the Reclamation Withdrawal land is cropland or potential cropland and the other half is grazing land, as shown in table 8. All lands not needed for Reclamation purposes should be returned to public domain and administered by the Bureau of Land Management, thus eliminating one agency from the administration of any considerable area of grazing land. All lands in Township 28 North and Township 29 North, Ranges 32 East and 33 East, Montana Principal Meridian, appear to be suitable for return to public domain status. This includes over 10,000 acres. Specific lands north of Township 29 North also appear to be suitable. Details should be worked out by the Bureau of Reclamation and the Bureau of Land Management.

Reclamation Withdrawal lands in Isolated Tract areas were examined only in that portion of the area north of the Milk River from Dodson Reservoir west to Harlem. Most of this land appears to be suitable for return to public domain. In general, most of the Reclamation Withdrawal land, except that which is needed in connection with the Milk River Project operation or for proposed projects in the area, should be restored to public domain. Reclamation Withdrawal lands which are suitable only for grazing pending reclamation development should be administered by the Bureau of Land Management.

State Lands

Throughout the Area Classification part of the area there is much scattered State land surrounded by large blocks of vacant public domain. The acquisition of this land by the Bureau of Land

Management would result in more efficient administration. There is also much scattered vacant public domain land which might be exchanged to the State in return, which will be considered later in this report. Specific State lands which are proposed for exchange to the Bureau of Land Management have been listed for the consideration of the State Supervisor of Montana and others concerned. This list was prepared by the study group in consultation with the Manager of the Malta Grazing District. State lands listed for exchange in 1954 included 62,175 acres, 9,520 acres in Blaine County, 15,360 acres in Phillips County, and 37,295 acres in Valley County.

Private Lands

There are some localized acreages of privately owned land within the proposed management area which should be acquired for more efficient administration of the larger areas of vacant public domain. In some cases, exchanges can be worked out by which such private lands are acquired in exchange for vacant public domain in the Isolated Tract area, or vacant public domain of less administrative importance within the proposed management area. Such exchanges will have to be worked out by the administrative office of the Bureau of Land Management individually with the private landowner concerned.

Transfer of Title Program

The five maps with this report show the Area Classification and Isolated Tract portions of the area. Land management by the Bureau of Land Management should continue in the Area Classification portions;and most of the land in the Isolated Tract portions is recommended for change of status, as shown in detail in table 27. The Isolated Tract portions of the area make up over 50 percent of the total land area, but less than 5 percent of the vacant public domain. This vacant public land is generally of little or no multiple-use value, and is subject to little erosion hazard. Change in status of this land to private or State ownership would cause no Federal problems and would promote more effective administration of the remainder of the vacant public domain.

A tabulation of acreage of Land Use Capability classes of vacant public domain land in the Isolated Tract areas by proposed future landownership is given below:

Proposed Management	Land Use Capability classes (acres)					
	II, III, IV	V	VI	VII	VIII	Total
Federal	1,423	46	6,294	5,962	678	14,403
State	162	48	7,747	5,915	14	13,886
Private	5,467	605	30,053	31,994	1,234	69,353
Total	7,052	699	44,094	43,871	1,926	97,642

A tabulation of the forage on vacant public domain lands in Isolated Tract areas, by animal unit months, by proposed future status, is shown below:

Proposed Management	Total acres	Total AUM's	Recommended stocking rate (acres per AUM)
Federal	14,402	2,681	5.4
State	13,887	2,852	4.9
Private	69,353	14,071	4.9
Total	97,642	19,604	5.0

Seventy-one percent of the vacant public domain in Isolated Tract areas is recommended for private ownership, 14 percent for State ownership, and 15 percent to remain in Federal ownership. In general, the poor quality land with multiple-use values is that which is proposed for continued Federal control. The lands in II to IV capabilities which are proposed for continued Federal management are those lands which are in the proposed management area and are needed in connection with the administration of the Land Utilization Project land. A detailed list of lands for which exchange to the State is proposed has been prepared by the field group in cooperation with the Manager of the Malta Grazing District. This list has been submitted to the Montana State Supervisor for the consideration of all parties concerned. The land listed includes 13,959 acres, with 7,276 acres in Blaine County, 1,120 acres in Chouteau County, 80 acres in Phillips County, and 5,483 acres in Valley County.

Of the lands for which change in status to private ownership is recommended, over 5,000 acres are in capability classes II to IV. These lands are physically suitable for disposal under the homestead laws, while most of the remaining land is suitable for disposition by exchange or public sale. Determination of status change methods for individual tracts should be based on the individual classification reports which are summarized in table 27. Classification for small tracts has not been recommended for any of the land in the Isolated Tract areas. Value of each tract for recreation, wildlife, watershed, and small tracts should be carefully considered at the time status change is contemplated. There are isolated tracts of vacant public domain within the Area Classification area which may be suitable for change in status. In this part of the area there are 57,589 acres of class IV capability public domain lands which are physically susceptible to cultivation. Much of this land consists of small pieces included in large blocks of vacant public domain of poor capability, and is not suitable for status change. Land Utilization Project lands within the Area Classification part of the area include 12,379 acres of classes I, II, and III capability and 147,035 acres of class IV capability. Proposed management of this land has been considered as a special problem.

Rangeland Problems

Physical Problems

The Milk River Area is more fortunate than much of the Missouri River Basin with regard to purely physical range problems. Poisonous plants, insects, brush, and rodents are relatively unimportant, and in fact should not be considered problems of any consequence. Range deterioration, a serious problem in many parts of the Missouri Basin, is very slight in the Milk River Area. Range condition in the Area Classification part of the area is shown on the five maps with this report.

Inventory data show that less than 20 percent of the vacant public domain lands in the detailed study area is in a deteriorated condition. Land Utilization Project lands are in better condition than State, private, or other lands. Public domain lands lead other status classes in both excellent and poor condition, though the percentage figures, 3.2 and 2.3, respectively, are very small. The higher amount of excellent condition is due to the fact that range deterioration was found to be least on the sites of lowest productivity, and that such sites were most common on vacant public domain. The reason for the larger amount of poor condition range in vacant public domain is uncertain, but is probably the result of overuse by livestock in the past. There are no specific areas which can be considered problem spots with regard to range condition. As may be seen from the five maps with this report, the comparatively small number of sites in poor and fair condition is scattered throughout the entire study area.

Range condition in the Area Classification part of the area, by landownership, is shown graphically in figure 8 and in the following tabulation:

	Condition class (acres)				
Landownership	Poor	Fair	Good	Excellent	Total
Public domain & withdrawals	37,274	268,967	1,236,411	51,833	1,594,485
Percentile	2	17	78	3	100
Land Utilization Project	6,538	58,732	490,634	5,171	561,075
Percentile	1	11	87	1	100
Reclamation Withdrawal			38,889		38,889
Percentile			100		100
Other lands	19,545	203,951	1,588,216	17,054	1,828,766
Percentile	1	11	87	1	100
Total	63,357	531,650	3,354,150	74,058	4,023,215
Percentile	1.6	13.2	83.4	1.8	100

The most serious physical range problem in the Milk River Area is poor distribution of livestock water supply. This is one of the causes of isolated spots of deteriorated range, due to the fact that a shortage of livestock water leads to improper distribution of livestock. Potential sites have been selected for development of livestock water, as shown on the five maps with this report.

In general, climate is the limiting physical factor regarding range forage in this area. With adequate rainfall there is adequate forage, and in years of drought forage will be insufficient. This area has been grazed for over fifty years, through years of drought as well as of sufficient rainfall. The over-all condition in the Area Classification portion is still 85 percent good and excellent.

Fire on the range is a problem which assumes serious proportions in some years. Loss of forage for the current season works a hardship on range users, and may be of serious economic consequence locally.

Administrative Problems

The most serious problems concerning the vacant public domain range in the Milk River Area are primarily administrative. These problems are being met by the State and District offices of the Bureau of Land Management, and are largely beyond the scope of this report. Some of the most important problems include the need for completion of adjudication of grazing privileges and the problem of dealing with State grazing districts. The determination of proper stocking and fencing programs are, of course, dependent upon adjudication of vacant public domain grazing privileges. State grazing districts, a valuable tool in the administration of grazing land prior to the passage of the Taylor Grazing Act of 1934, often complicate the administration of vacant public domain without any particular advantage to the range user. These and other administrative problems, as previously stated, are being worked out by the Bureau of Land Management.

Watershed Problems

Watershed breakdown, with soil loss and resulting sedimentation, is one of the most serious problems in the Milk River Area. The on-site losses in productive soil, coupled with sedimentation of important downstream reservoirs, lead to tremendous financial loss caused by watershed breakdown. Watershed breakdown within the area varies sharply as to intensity, and differing areas are rather sharply defined as follows:

1. Willow Creek watershed in south Valley County. This is an area of unstable soil sites with scanty vegetation. As shown on the five maps with this report, erosion in this area, particularly sheet and gully erosion, is relatively high. This drainage area is probably the most serious watershed problem spot in the study area, and is most in need of and suitable to control measures. The Willow Creek watershed includes about 350,000 acres, or 8.7 percent, of the Area Classification part of the area.

2. The Missouri "breaks" along the north bank of the Missouri River and Fort Peck Lake through the study area. This section is extremely steep and broken, with soils that are thin and

unstable. Smaller contributory watersheds and steeper slopes make control measures less feasible here than on the Willow Creek watershed. This drainage area includes most of the Fort Peck Game Range north of Fort Peck Lake and about 500,000 additional acres in the Area Classification part of the area.

3. The remainder of the study area, including Milk River watershed with the exception of Willow Creek. This section constitutes about 80 percent of the total study area in acreage, and presents a very minor watershed problem. Soils are stable, and slopes generally gentle, and a good vegetative cover is generally found. Isolated spots of accelerated erosion and watershed breakdown may be found, among which is part of the Rock Creek drainage in north Valley County.

Recreation Use and Development of Fort Peck Lake and Shore Lands

Increasing population and multiplying demand for recreation along with the geometrical progression in boating will combine to promote the use of Fort Peck Lake and its shore lands. Development, use, and settlement of these lands should progress in an orderly manner for the ultimate benefit of the greatest number. Problems of development and access should be investigated and planned by all agencies concerned. These plans should be constantly reviewed in the light of new demands and developments. Federal agencies concerned are the Corps of Engineers, Bureau of Public Roads, National Park Service, Fish and Wildlife Service, and the Bureau of Land Management. The Bureau of Reclamation is also concerned, as it distributes the power produced at the Fort Peck Power Plant. Revenue from this power might be a source of funds for development of recreation sites and access roads in the lake area. All public lands within the direct drainage to Fort Peck Lake should be retained in public ownership with no disposal or transfer except under such a fully developed, well-considered plan. This plan should provide for public areas, service facilities, regulated development of cabin and home sites and complete coordination of the proper future development and progress of the lake area.

Access to Fort Peck Lake

Fort Peck Lake has two all-weather roads that give access: State Highway 24, across Fort Peck Dam, and State Highway 19, which crosses the Missouri River near the head of the lake on a bridge in Section 31, Township 22, Range 24, 105 miles west of the dam. A road should be built connecting these two highways that would provide access to the lake at numerous points and which would be so located as to be a scenic highway from which tourists could view this magnificent lake. This road should be surfaced so that it would be useful in any weather. This is particularly important, as much of the area to be traversed is "gumbo," or clay, that becomes sticky and impassable when wet. To provide the best views of the lake, this proposed road should be located on high ground affording a good overlook of the lake over as much of the route as feasible.

A good dirt road extends up Willow Creek from three miles northwest of the dam to Section 8, Township 23, Range 35. The proposed scenic access road might be extended from this point westward on ridges and along overlook sites to State Highway 19 and the old Power Plant Ferry Road. Construction should commence in both directions from State Highway 19 within the area which has been proposed for a State Park, and also from the east. The Willow Creek section of the road should probably be relocated along the ridge south of Willow Creek before it is made into an all-weather road.

At the present time, three improved dirt roads branch off the Willow Creek road to points on the north shore of the lake. One of these roads leads to the Pines Recreation Area. Further west, three improved roads extend from the Phillips County road network to points on or near the lake. There are a number of primitive roads and trails which extend along ridges or drainages to or near the north shore of the lake from improved county roads. These roads are depicted on the five maps with this report. They provide a fair degree of access to established recreation areas and a number of points on the north shore of the lake during fair weather when the roads or trails are dry.

POTENTIAL IMPROVEMENTS FOR THE DEVELOPMENT AND MANAGEMENT OF THE PUBLIC DOMAIN

Resource Development

This section includes proposals for development of the range resource in the Milk River Area for erosion and runoff control. Development programs have been confined to the Area Classification portion which contains the majority of the vacant public domain in the study area. Potential range improvement sites shown on the five maps with this report reflect field work prior to 1954. The "Twenty Year Program of Range Conservation and Improvements" was initiated in 1954 and revised in 1959. Numbers and types of proposed improvements together with estimated costs from this 20-year plan are shown in table 26. Costs were based on estimates made in 1959 by the Malta Grazing District. Large portions of the public lands involved will give immediate beneficial response to conservation measures. Many of these conservation practices and improvements are now in the process of being carried out. These conservation measures include fencing of grazing allotments, livestock water developments, water detention control structures, waterspreading systems, and the treatment and revegetation of low capacity range.

Livestock Water

Proposed livestock water facilities include reservoirs, wells, and the development of springs. The need for additional livestock water is general throughout the area, and proposed development is accordingly general. Most of the proposed spring developments are in foothill areas of the Little Rocky and Bearpaw Mountains in southern Phillips and Blaine Counties. Wells have been proposed only in those areas where ground water is believed to be available at a depth to make wells economically feasible. Wells are proposed only where drainage patterns or site conditions make reservoir development difficult.

Waterspreading and Contour Furrows

Most of the proposed waterspreading structures and contour furrows are in Willow Creek and Timber Creek watersheds in south Valley County and in the Telegraph Creek watershed in south Phillips County. The Bureau of Land Management is presently

Table 26.--Summary of the Twenty Year Program of Range Conservation and Improvements for the Milk River Area, Montana, 1959

Structures & Practices	Unit	No. units	Costs, dollars			
			Construction		Maintenance	Grand
			Per unit	Total	20 years	Total
Contouring & Pitting	Acres	120,059	4.22	506,649	0	506,649
Fencing	Miles	1,650	896.00	1,478,400	147,840	1,626,240
Pest Control	Acres	101,300	.12	12,156	0	12,156
Reseeding	Acres	140,000	5.28	739,200	0	739,200
Tree Planting	No.	392,000				
	Acres	490	110.00	53,900	0	53,900
Weed Control	Acres	38,000	10.00	380,000	0	380,000
Detentions	No.	366				
	Cu. yds.	17,202,000	.46	7,912,920	395,646	8,308,566
Dikes	Lin. ft.	2,471,040				
	Cu. yds.	1,853,238	.19	352,115	35,211	387,326
Diversion and Plugs	No.	67				
	Cu. yds.	435,500	.24	104,520	10,452	114,972
Reservoirs - Retention	No.	1,064				
	Cu. yds.	5,639,200	.21	1,184,232	59,212	1,243,444
Springs	No.	98	625.00	61,250	6,125	67,375
Wells	No.	92	3,411.68	313,875	31,388	345,263
Bridges	No.	9	4,375.00	39,375	3,938	43,313
Cattle Guards	No.	34	625.00	21,250	2,125	23,375
Corrals	No.	49	325.00	15,925	1,592	17,517
Predator Control	Project	4	1,000.00	4,000	0	4,000
Study Plots	No.	11	489.00	5,379	538	5,917
Fire Trails (Truck Trails)	Miles	140	500.00	70,000	14,000	84,000
Totals				13,255,146	708,067	13,963,213

The improvements and practices listed in this table were investigated and compiled in 1959. The potential improvement sites shown on the five maps with this report were compiled from field work performed in 1952 to 1954 and do not necessarily coincide with the above data.

nvolved in extensive erosion control work in this area. The extremely critical erosion conditions are here combined with slope and landownership patterns which are well suited to control measures. Smaller areas of contour furrowing and waterspreading are needed and planned in other portions of the study area, particularly n north Valley County, where conditions approximate the southern drainages on a smaller scale. Proposed erosion control struc-ures have been confined to those areas where a combination of soil oss, low range forage production, and suitability for construction would lead to economically justifiable results. The large diversion and detention dams proposed are all to be used in conjunction with proposed waterspreading systems or land treatment projects.

Fences

The construction of approximately 1,650 miles of allotment boundary fence is planned. This amount of fencing is necessary to adequately control numbers and seasons of use by livestock. The ocation of this type of project must necessarily be administratively determined for each grazing allotment.

Fire Trails (Truck Trails)

Construction of an estimated 140 miles of fire trails (truck rails) is necessary to provide adequate access for fire suppression nd for range development and management purposes.

Other Improvements

Other improvements needed and planned include additional ange use facilitating and erosion-control type projects. These dditional conservation improvements are shown in table 26. They nclude bridge and cattle guards on truck trails, pitting by machine or water conservation and vegetal improvement on rangeland; ontrol of weeds, pests, and predators; rangeland reseeding; plots or study of range condition, trend, and improvement; and tree lanting for erosion control and shelter areas for livestock. All f these structures and practices are designed to restore, main-ain, or improve the surface resources of the public lands in the rea.

Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/

Twp. North	Meridian Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Blaine County										
27	17	26	SW¼NW¼, NE¼SW¼	80.00	Rough and broken	13	1	VII	1	Private
		34	SE¼SE¼	40.00	Rough and broken	5	1	VII	1	Private
27	18	4	Lots 2 & 7	64.91	Steeply rolling	15	1-4	16/III:48.91/VI	1-4	Private
		25	SE¼SE¼	40.00	Steep and rough	14	1	VII	1	Private
		27	SE¼NE¼	40.00	Very steep and rough	8	1	VII	1	Private
		31	SE¼SW¼, SW¼SE¼	80.00	Very steep and rough	16	1	VII	1	Private
27	18	32	SE¼NW¼	40.00	Very steep and rough	14	1	VII	1	Private
		35	NW¼NE¼	40.00	Rolling hills	14	1	VI	1	Private
27	19	1	Lot 1	23.92	Rolling	6	1	VII	1	Private
		1	Lot 5, SW¼NW¼	80.00	Rolling	19	1	VI	1	Private
		2	Lots 1,2,3,7,8,SE¼NE¼	192.22	Rolling	46	1	VI	1	Private
		17	S½NE¼, SE¼NW¼	120.00	Rolling	30	1	VI	1	State
		20	SE¼SW¼	40.00	Rolling	10	1	VI	1	State
		29	NE¼NW¼	40.00	Rolling to rough	10	1	10/VI:30/VII	1	State
		30	SW¼NE¼	40.00	Rough and broken	7	1	VII	1	State
		35	E½,NW¼,NE¼SW¼,S½SW¼	600.00	Rough and broken	60	1	VII	1	Federal
27	20	4	E½SE¼,SW¼SE¼,SE¼SW¼	160.00	Gently rolling	46	1	80/IV:80/VI	1-4	Private
		5	Lot 9	40.00	Gently rolling	9	1	VI	1	Private
		5	SW¼SE¼	40.00	Gently rolling	11	1	VI	1	Private
		7	Lot 2	26.35	Gently rolling	7	1	VI	1	Private
		9	E½NW¼	80.00	Gently rolling	26	1	IV	1-4	Private
27	21	1	Lots 1,2, SW¼SW¼	88.71	Rolling	20	1	48.71/VI:40/VII	1	Private
		2	Lots 1,2,3, & 4	97.40	Rolling	25	1	VI	1	Private
		3	Lots 1,2, & 8	88.72	Rolling to rough	18	1	39.36/VI:49.36/VII	1	Private
		3	Lots 11 & 12	80.00	Rolling	21	1	VI	1	Private
		11	SW¼NW¼, NW¼SW¼	80.00	Rough	11	1	VII	1	Private
		12	W½NW¼,SE¼NW¼,E½SW¼	200.00	Rolling to rough	42	1	40/VI:160/VII	1	Private

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Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Blaine County										
27	21	19	Lot 3	38.87	Rough and broken	5	1	VII	1	Private
		23	SE¼NE¼	40.00	Rolling	11	1	VI	1	Private
		24	NE¼,E½NW¼,NE¼SE¼	280.00	Rolling to rough	60	1-2	140/VI:140/VII	1-2	Private
		24	SW¼SW¼	40.00	Rolling	7	1	VI	1	Private
		25	S½NE¼, SE¼NW¼	120.00	Rolling to rough	17	1-2	60/VI:60/VII	1-2	Private
		26	NE¼SE¼	40.00	Rolling	7	1	VI	1	Private
		27	NW¼	160.00	Rolling	35	1	VI	1	Private
		29	SW¼SW¼	40.00	Rough and broken	8	1	20/IV:20/VII	1	Private
		30	SW¼NE¼	40.00	Rough and broken	4	1	VII	1	Private
		33	SE¼NE¼, N½SE¼	120.00	Gently rolling to rough	23	1	45/IV:40/VI:35/VII	1-4	Private
		34	NE¼, N½SW¼, S½NW¼, N½SE¼, SE¼SE¼	440.00	Gently rolling to rough	70	1	60/IV:260/VI:120/VII	1	Private
27	22	4	Lots 5, 6	53.44	Rolling	12	1	VI	1	Private
		4	Lots 10, 15	80.00	Rolling	18	1	VI	1	Private
		7	W½NW¼, NW¼SW¼	120.00	Rolling to rough	27	1	100/VI:20/VII	1	Private
		7	NE¼NE¼	40.00	Gently rolling	10	1	IV	1-4	Private
		8	E½NW¼, NE¼SW¼	120.00	Flat to rolling	25	1	20/IV:100/VI	1-4	Private
		9	SW¼NW¼	40.00	Rolling	10	1	VI	1	Private
		17	NE¼SW¼	40.00	Rolling	10	1	VI	1	Private
		19	NW¼NW¼	40.00	Rolling	9	1	VI	1	Private
		20	SE¼NW¼	40.00	Rolling	10	1	VI	1	Private
		31	W½SE¼	80.00	Rough and broken	12	1	VII	1	Private
		33	Lot 8	52.36	Rolling	13	1	VI	1	Private
28	18	23	W½NE¼	80.00	Steep and mountainous	12	1	VII	1	Private
		28	NW¼SW¼	40.00	Steep and mountainous	10	1	VII	1	Private
		33	SW¼SE¼	40.00	Flat to steep	7	1-4	16/III:24/VI	1-4	Private

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Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Montana Principal Meridian Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Blaine County										
28	19	13	S½NE¼, NW¼SE¼	120.00	Rolling to very steep	15	1-3	25/VI:95/VII	1-3	Private
		26	SW¼SW¼	40.00	Rough	10	1-3	VII	1-3	Private
		27	Lot 7	38.31	Rough	10	1-3	VII	1-3	Private
		29	NW¼SE¼	40.00	Rolling to rough	11	1	20/VI:20/VII	1	Private
		30	W½SE¼	80.00	Rolling to rough	22	1	40/VI:40/VII	1	Private
		35	W½W½	160.00	Rolling to very steep	36	1-3	65/VI:85/VII:10/VIII	1-3	Private
28	20	2	Lot 4	40.42	Rough	8	1	VII	1	Private
		3	SE¼SE¼	40.00	Steep and mountainous	13	1	VII	1	Private
		4	SW¼SE¼	40.00	Steep and mountainous	13	1	VII	1	Private
		5	SW¼NW¼, NW¼SW¼	80.00	Steep and mountainous	--	2-3	VIII	2-3	Private
		6	Lot 1	40.96	Steep and mountainous	--	2-3	VIII	2-3	Private
		8	SE¼, S½SW¼	240.00	Very steep and mountainous	35	1-2-3	137/VII:103/VIII	1-2-3	Private
		9	S½NW¼,N½SW¼,Lots 4,5, 6,7	324.44	Very steep and mountainous	58	1-2-3	VII	1-2-3	Private
		10	E½NE¼, NE¼SE¼	120.00	Very steep and mountainous	29	1-2-3	90/VII:30/VIII	1-2-3	Private
		11	SW¼NW¼	40.00	Very steep and mountainous	11	1-2-3	33/VII:7/VIII	1-2-3	Private
		13	NW¼NW¼, S½NW¼, SW¼	280.00	Very steep and mountainous	35	1-2-3	175/VII:105/VIII	1-2-3	Private
		15	W½NW¼	80.00	Very steep and mountainous	26	1	VII	1	Private
		17	N½NE¼, NE¼NW¼	120.00	Very steep and mountainous	40	1-2-3	115/VII:5/VIII	1-2-3	Private
		20	SW¼SW¼	40.00	Rolling	14	1	VI	1	Private
		21	W½NW¼	80.00	Very steep and mountainous	20	1	VII	1	Private
		22	NW¼NW¼, W½SW¼	120.00	Very steep and mountainous	40	1	VII	1	Private
		26	NE¼SW¼	40.00	Steep	13	1	VII	1	Private
		27	SE¼SE¼	40.00	Steep	11	1	VII	1	Private
		30	SE¼SW¼	40.00	Moderately steep	11	1	VI	1	Private
		31	Lots 1, 2, E½NW¼	148.30	Flat to moderately steep	44	1	80/IV:68.30/VI	1-4	Private

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Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Blaine County										
28	21	6	Lots 4, 5	73.68	Rough	8	1	VII	1	Private
		6	SE$\frac{1}{4}$SE$\frac{1}{4}$	40.00	Gently rolling	12	1	IV	1-4	Private
		7	Lot 1, NE$\frac{1}{4}$NW$\frac{1}{4}$	77.06	Rough	13	1	VII	1	Private
		17	S$\frac{1}{2}$SE$\frac{1}{4}$	80.00	Gently rolling	24	1	IV	1-4	Private
		17	NW$\frac{1}{4}$SW$\frac{1}{4}$	40.00	Gently rolling	12	1	IV	1-4	Private
		18	NE$\frac{1}{4}$SE$\frac{1}{4}$	40.00	Gently rolling	12	1	IV	1-4	Private
		19	NW$\frac{1}{4}$NE$\frac{1}{4}$	40.00	Very rough and steep	5	1	VII	1	Private
28	22	15	Lot 1	.03	Rolling	--	1	VI	1	Federal
		19	NW$\frac{1}{4}$SW$\frac{1}{4}$	40.00	Rolling	8	1	VI	1	Private
		19	N$\frac{1}{2}$NE$\frac{1}{4}$, SE$\frac{1}{4}$NE$\frac{1}{4}$	120.00	Rolling upland and lake bed	10	1-2	60/VI:30/VII:30/VIII	1-2	Federal
		19	Lots 1, 3, 4	33.31	Rolling upland	8	1	VI	1	Private
		22	Lots 1,2,3,4	1.72	Rolling	1	1	VI	1	Federal
		27	Lots 1,2,3,4	4.40	Rolling	1	1	VI	1	Federal
		29	NE$\frac{1}{4}$SW$\frac{1}{4}$	40.00	Rolling	11	1	VI	1	Private
		32	SE$\frac{1}{4}$SW$\frac{1}{4}$	40.00	Rolling to rough	5	1	VII	1	Private
		34	Lots 1,2,3,4	7.28	Rolling	2	1	VI	1	Federal
29	17	8	Lot 2	50.36	Steep and broken	9	1	VII	1	Private
29	19	15	SW$\frac{1}{4}$SW$\frac{1}{4}$	40.00	Rough and mountainous	9	1	VII	1	Private
		17	SE$\frac{1}{4}$NE$\frac{1}{4}$	40.00	Rough and mountainous	11	1	VII	1	Private
29	20	1	NW$\frac{1}{4}$SE$\frac{1}{4}$	40.00	Rolling	11	1	VI	1	State
		10	NE$\frac{1}{4}$SW$\frac{1}{4}$	40.00	Rolling	12	1	VI	1	Private
		25	S$\frac{1}{2}$SE$\frac{1}{4}$	80.00	Very rough and mountainous	8	1-2-3	VII	1-2-3	Private
		28	Lots 2, 3	81.20	Flat to rough	18	1-4	10/IV:71.20/VII	1-4	Private
		31	Lot 4	39.95	Moderately steep	12	1	35/VII:4.95/VIII	1	Private
		34	SE$\frac{1}{4}$SW$\frac{1}{4}$	40.00	Rough	9	1	VII	1	Private
29	21	6	SE$\frac{1}{4}$SW$\frac{1}{4}$	40.00	Rough	7	1	VII	1	State
		7	Lot 1	38.79	Level to rolling	6	1-4	5/II:20/VI:13.79/VIII	1-4	State
		8	S$\frac{1}{2}$NE$\frac{1}{4}$	80.00	Rolling	21	1	VI	1	State
		18	Lots 3,4,E$\frac{1}{2}$SW$\frac{1}{4}$,W$\frac{1}{2}$SE$\frac{1}{4}$	240.17	Rough and mountainous	38	1-2-3	VII	1-2-3	Private

Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Blaine County										
29	21	19	Lots 1, 2	80.69	Rough and mountainous	13	1-2-3	VII	1-2-3	Private
		19	S½NE¼	80.00	Rough and mountainous	12	1	VII	1	Private
		20	SE¼SW¼	40.00	Rolling	12	1	VI	1	Private
		24	SE¼SW¼	40.00	Rolling	11	1	VI	1	State
		24	SE¼SE¼	40.00	Rolling	11	1	VI	1	State
		30	SE¼NE¼,SE¼,E½SW¼, Lots 3, 4	358.56	Rolling to rough	60	1-2-3	120/VI:238.56/VII	1-2-3	Private
		31	Lot 1, NE¼NW¼, N½NE¼	159.23	Rough and mountainous	16	1-2-3	VII	1-2-3	Private
		34	SW¼NW¼	40.00	Rolling to steep	11	1	20/VI:20/VII	1	State
29	22	4	Lots 1, 2, 3, 4	67.67	Rolling	20	1	VI	1	State
30	17	2	SE¼NW¼	40.00	Steep	12	1	VI	1	Private
30	21	1	S½NE¼, SE¼, SE¼NW¼ Lots 1,2,3, 4	439.68	Rough and broken	75	1	VII	1	State
		2	Lot 1	39.67	Rough and broken	7	1	VII	1	State
		12	N½NE¼,SW¼NE¼,NW¼SE¼	160.00	Rough and broken	29	1	70/VI:90/VII	1	State
30	22	4	Lots 12,13,14, 15	56.68	Rolling to rough	11	1	28.24/VI:28.44/VII	1	State
		5	SE¼, S½SW¼	240.00	Rolling to rough	41	1	20/VI:220/VII	1	State
		6	SE¼, SE¼SW¼	200.00	Rough and broken	34	1	VII	1	State
		7	N½, N½SE¼	400.00	Rolling to rough	68	1	15/VI:385/VII	1	State
		8	All	640.00	Rolling to rough	109	1	VII	1	State
		9	Lots 9,10,11, 12	57.24	Rolling to rough	10	1	VII	1	State
31	17	12	E½E½, SW¼SE¼	200.00	Rolling to steep	46	1	130/VI:70/VII	1	Private
31	18	7	Lots 1,2,3, 4	142.64	Rolling to steep	36	1	VI	1	Private
		23	SW¼NE¼,SE¼NW¼,NE¼SW¼	120.00	Rolling to steep	23	1	25/VI:95/VII	1	Private
		29	SW¼NE¼	40.00	Rolling	10	1	VI	1	Private
31	21	18	NW¼NE¼	40.00	Rolling	10	1	12/IV:28/VI	1	Private

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Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Blaine County										
31	21	20	NW¼NE¼	40.00	Rolling	10	1	VI	1	Private
31	22	9	Lot 1	7.91	Rolling	3	1-4	IV	1-4	Private
		18	SE¼SE¼	40.00	Rolling	8	1	VI	1	Private
		28	Lot 1	12.89	Level	--	4	III	4	Private
		33	Lots 1,2,3, 4	61.60	Rolling	15	1	VI	1	State
31	24	3	Lot 6	31.71	Nearly level bottomland	8	1	IV	1	Private
		4	Lot 9	9.73	Nearly level bottomland	1	1	IV	1	Private
		12	Lot 5	13.30	Nearly level bottomland	5	1	IV	1-4	Private
		12	Lot 8	13.36	Nearly level bottomland	5	1	IV	1-4	Private
		13	Lots 1,2, 3	63.79	Nearly level bottomland	15	1	IV	1-4	Private
31	25	5	N½SW¼	80.00	Rolling Hills	22	1	VI	1	Private
		6	SW¼SE¼	40.00	Level	13	1	IV	1-4	Private
		8	NW¼NW¼	40.00	Level	13	1	IV	1-4	Private
		9	E½NE¼	80.00	Rolling hills	20	1	VI	1	Private
		10	W½NW¼,NE¼,NW¼SE¼	280.00	Rolling hills	70	1	VI	1	Private
		11	SE¼SW¼	40.00	Rolling hills	10	1	VI	1	Private
		12	NW¼NW¼	40.00	Rolling hills	9	1	VI	1	Private
		12	S½S½	160.00	Level bottom to rolling	31	1-4	20/III:140/VI	1-4	Private
		13	N½NW¼	80.00	Level bottom to rolling	10	1-4	60/IV:20/VI	1-4	Private
		13	Lot 2	25.40	Level bottomland	3	4	IV	4	Private
		17	Lot 3	23.70	Level bottomland	6	1	IV	1-2	Private
		18	Lot 8	5.37	Level bottomland	1	1	IV	1-2	Private
		21	Lots 2, 5	73.21	Nearly level bottomland	18	1	IV	1-4	Private
		23	Lot 4	34.06	Nearly level bottomland	12	1	IV	1-4	Private
		26	Lot 1, 6	28.19	Nearly level bottomland	7	1	IV	1-4	Private
		27	Lot 1	6.06	Nearly level bottomland	1	1	IV	1-4	Private
		28	Lot 1	13.44	Nearly level bottomland	4	1	IV	1-4	Private

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Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Blaine County										
31	26	4	Lot 1, SE$\frac{1}{4}$	199.93	Rough and broken	28	1	VII	1	Private
		5	Lots 3, 4, S$\frac{1}{2}$NW$\frac{1}{4}$	160.00	Rough and broken	13	1	VII	1	Private
		6	Lots 1, 2, S$\frac{1}{2}$NE$\frac{1}{4}$	160.00	Rough and broken	21	1	VII	1	Private
		18	E$\frac{1}{2}$NE$\frac{1}{4}$, NW$\frac{1}{4}$NE$\frac{1}{4}$	120.00	Level to broken hills	26	1	55/IV:65/VII	1	Private
32	17	1	Lots 1, 2	59.22	Flat to steep breaks	9	1	15.22/V:44/VII	5-6	Federal
32	18	1	SW$\frac{1}{4}$SW$\frac{1}{4}$	40.00	Rolling	12	1	VI	1	Private
		23	NE$\frac{1}{4}$SW$\frac{1}{4}$	40.00	Rolling to steep	8	1	10/IV:30/VI	1-4	Private
32	19	3	Lot 3	39.10	Rolling	9	1	VI	1	Private
		22	SE$\frac{1}{4}$NE$\frac{1}{4}$, NE$\frac{1}{4}$SE$\frac{1}{4}$	80.00	Rough and broken	15	1	10/IV:70/VII	1	Private
		26	W$\frac{1}{2}$SW$\frac{1}{4}$	80.00	Rough and broken	13	1	10/IV:70/VII	1	Private
		33	SE$\frac{1}{4}$	160.00	Rough and broken	26	1	10/IV:25/VI:125/VII	1	Private
32	20	9	SW$\frac{1}{4}$NW$\frac{1}{4}$	40.00	Rolling	10	1	VI	1	Private
		13	SW$\frac{1}{4}$SE$\frac{1}{4}$	40.00	Flat to rolling	11	1	VI	1	Private
		14	S$\frac{1}{2}$SE$\frac{1}{4}$	80.00	Flat to rolling	14	1	VI	1	Private
		15	SW$\frac{1}{4}$NW$\frac{1}{4}$	40.00	Rolling	10	1	VI	1	Private
		19	W$\frac{1}{2}$NE$\frac{1}{4}$, NW$\frac{1}{4}$SE$\frac{1}{4}$	120.00	Rolling	48	1	VI	1	Private
		24	SW$\frac{1}{4}$SE$\frac{1}{4}$	40.00	Flat to rolling	10	1-4	20/IV:20/VI	1-4	Private
32	22	1	Lots 1,2,3, S$\frac{1}{2}$NW$\frac{1}{4}$ NW$\frac{1}{4}$SW$\frac{1}{4}$,S$\frac{1}{2}$NE$\frac{1}{4}$,NE$\frac{1}{4}$SE$\frac{1}{4}$	361.80	Flat to steep and broken	31	1	40/IV:321.80/VII	1	Private
		2	Lot 1	41.51	Rolling	7	1	VI	1	Private
		4	Lot 3	40.57	Level	10	1	IV	1	Private
		21	Lots 1,2,3, 4	49.12	Level	11	1-4	IV	1-4	Private
		28	Lots 1,2,3, 4	48.32	Level	8	1-4	IV	1-4	Private
		33	Lots 1, 2	23.64	Level to rolling	5	1-4	14.64/IV:9.0/VI	1-4	Private
32	23	1	Lot 1,SE$\frac{1}{4}$NE$\frac{1}{4}$,SW$\frac{1}{4}$SE$\frac{1}{4}$	119.86	Rolling to steep hills	26	1	80/VI:39.86/VII	1	State
		4	SE$\frac{1}{4}$NE$\frac{1}{4}$	40.00	Steep and broken	5	1	VII	1	Private

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Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Blaine County										
32	23	5	SW¼NW¼, E½SW¼	120.00	Steep and broken	9	1	VII	1	Private
		6	Lots 1,2,3,4,4,6,S½NE¼, SE¼NW¼,NE¼SW¼	387.98	Rolling to broken hills	57	1	75.84/VI:312.14/VII	1	Private
		8	E½NW¼,SE¼NE¼,NE¼SE¼	160.00	Steep and broken	16	1	VII	1	Private
		9	NW¼SW¼	40.00	Steep and broken	2	1	VII	1	Private
		10	SE¼	160.00	Steep and rough	22	1	VII	1	Private
		11	W½SW¼,SE¼SW¼,SW¼SE¼	160.00	Steep and rough	14	1	VII	1	Private
		13	W½	320.00	Rolling to steep hills	50	1	240/VI:80/VII	1	Private
		14	NE¼,E½NW¼,NW¼NW¼,NE¼SW¼	320.00	Rolling to steep hills	32	1	40/VI:280/VII	1	Private
		15	N½NE¼,SW¼NE¼,E½NW¼	200.00	Rolling to steep hills	32	1	120/VI:80/VII	1	Private
		24	NE¼SE¼,NE¼,E½NW¼	280.00	Rolling hills	51	1	VI	1	Private
32	24	4	All	639.80	Level to broken hills	74	1	160.35/VI:479.45/VII	1	Private
		5	Lots 1,2,S½NE¼,SE¼	318.85	Level to broken hills	30	1	39.46/VI:279.39/VII	1	Private
		6	Lots 3, 4 ,SE¼NW¼,S½SE¼	230.62	Rolling hills	58	1	VI	1	State
		7	NE¼NE¼	40.00	Steep and broken	6	1	VII	1	State
		8	E½E½, NW¼NE¼	200.00	Steep and broken	14	1	VII	1	Private
		9	All	640.00	Steep broken hills	45	1	VII	1	Private
		14	NE¼SE¼	40.00	Rolling hills	11	1	VI	1	Private
		15	SE¼,S½NE¼,NW¼NE¼,NW¼, W½SW¼	520.00	Rolling to steep hills	75	1	80/VI:440/VII	1	Private
		17	NE¼NE¼	40.00	Steep broken hills	3	1	VII	1	Private
		17	SE¼SE¼, W½SE¼	120.00	Rolling hills	28	1	VII	1	Private
		18	SE¼SW¼	40.00	Rolling hills	9	1	VII	1	Private
		20	N½NW¼, NW¼NE¼	120.00	Rolling hills	28	1	VII	1	Private
		21	S½NW¼, N½SW¼	160.00	Rolling hills	37	1	VII	1	Private
		21	NE¼NE¼	40.00	Rough broken hills	3	1	VII	1	Private
		22	N½NW¼	80.00	Rolling to steep	14	1	40/VI:40/VII	1	Private

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Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Blaine County										
32	24	29	NW¼	160.00	Intermittent lake and level	21	1	97/IV:63/VIII	1	Private
32	25	1	SW¼NW¼	40.00	Rolling hills	11	1	VI	1	Private
		3	SW¼NW¼	40.00	Level	10	1	IV	1-4	Private
		5	Lot 3	45.00	Rolling hills	11	1	VI	1	Private
		6	Lot 2	45.00	Rolling hills	9	1	VI	1	Private
		7	SE¼SW¼	40.00	Steep rough breaks	6	1	VII	1	Private
		8	SE¼NE¼,NW¼SW¼	80.00	Level to rolling	16	1	VI	1	Private
		9	NW¼SE¼	40.00	Level to rolling	10	1-4	15/IV:25/VI	1-4	Private
		11	NE¼	160.00	Rolling hills	43	1	VI	1	Private
		12	W½	320.00	Rolling hills	86	1	VI	1	Private
		17	NE¼NE¼	40.00	Level to rolling	8	1	15/IV:25/VI	1	Private
		18	NE¼SW¼	40.00	Level to rolling	5	1	10/IV:30/VII	1	Private
		19	Lot 3	34.09	Rolling hills to badlands	6	1	19.09/VI:15/VII	1	Private
		20	NE¼NW¼	40.00	Rolling hills	10	1	VI	1	Private
		22	N½NW¼	80.00	Rough level to broken hills	14	1	40/VI:40/VII	1	Private
		32	NW¼SW¼, SW¼NW¼	80.00	Badlands	8	1	VII	1	Private
32	26	5	SE¼NE¼	40.00	Rolling hills	12	1	VI	1	Private
		6	Lot 4	44.58	Rolling hills	12	1	IV	1	Private
		8	SW¼SE¼	40.00	Rolling hills	12	1	VI	1	Private
		17	N½NE¼	80.00	Rolling hills	24	1	VI	1	Private
		19	Lot 3	38.82	Nearly level to broken	7	1	10/IV:28.82/VII	1	Private
		30	NW¼NE¼,E½W½,SW¼SE¼	240.00	Rough broken hills	31	1	VII	1	Private
		31	Lots 1,2,3,4,SE¼SE¼, W½E½, E½W½	516.00	Rough broken hills	88	1	VII	1	Private
		33	W½SW¼, SE¼	240.00	Rolling to steep	33	1	25/IV:215/VII	1	Private
33	17	2	Lots 3, 4	78.92	Rolling to rough	16	1	39.42/VI:39.50/VII	1	Private

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Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Blaine County										
33	18	5	Lots 1,2,3, S½NE¼, NE¼SW¼,SE¼NW¼	276.18	Rolling to rough	67	1	142.68/VI:133.50/VII	1	Private
		25	SE¼SE¼	40.00	Rolling upland	12	1	VI	1	State
33	19	1	Lots 3, 4, S½NW¼,W½SW¼, SE¼SW¼, SW¼SE¼	321.38	Level to rough breaks	36	1	80/VI:241.38/VII	1	State
		2	Lots 1,2,3, SE¼NW¼, S½NE¼, E½SW¼, SE¼	481.59	Level to rough breaks	61	1	80/VI:401.59/VII	1	State
		12	N½,N½SW¼,SE¼	560.00	Rough breaks	45	1	VII	1	State
		13	NE¼NE¼	40.00	Rough breaks	3	1	VII	1	State
33	20	7	Lots 1,2,3,4,E½W½	321.08	Level to rough breaks	33	1	40/VI:281.08/VII	1	State
		18	Lots 1,2,3,E½NW¼,NE¼SW¼	241.03	Level to rough breaks	37	1	80.24/VI:160.79/VII	1	State
		25	NE¼NE¼	40.00	Rolling	10	1	VI	1	Private
33	21	1	Lot 1, SW¼NE¼	79.94	Rolling to rough	17	1	44.94/VI:35/VII	1	Private
		5	NE¼SW¼	40.00	Rolling	10	1	VI	1	Private
		5	SW¼SW¼	40.00	Rolling to rough	9	1	20/VI:20/VII	1	Private
		21	NW¼NW¼	40.00	Rolling to rough	7	1	10/VI:30/VII	1	Private
		23	SW¼SE¼	40.00	Rough	3	1	VII	1	Private
		25	SE¼NE¼	40.00	Rough	6	1	VII	1	Private
		26	SE¼NE¼,E½SE¼,SW¼SE¼	160.00	Rolling to rough	35	1	80/VI:80/VII	1	Private
33	22	1	Lot 3, SE¼NW¼	80.04	Rolling hills	20	1	VI	1	Private
		5	Lots 3, 4, S½NW¼, S½	482.84	Rolling to steep and rough	79	1	232/VI:250.84/VII	1	Private
		6	Lots 1, 2, SE¼NW¼	118.15	Rolling to rough	20	1	18.15/VI:100/VII	1	Private
		7	SE¼NW¼, NW¼SE¼	80.00	Rough	12	1	VII	1	Private
		8	Lots 1,2,3,5,6,8,S½N½	398.47	Rolling to steep breaks	68	1	170.20/VI:228.27/VII	1	Private
		8	SW¼SW¼	40.00	Steep and broken	5	1	VII	1	Private
		9	Lots 1,2,3,4,5,6,7,8, SE¼NW¼,SW¼NE¼,E½SW¼	483.08	Rolling to steep breaks	34	1	40.11/VI:442.97/VII	1	Private

Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Blaine County										
33	22	15	W½NW¼,SW¼,S½SE¼	320.00	Steep and broken	22	1	VII	1	Private
		17	N½NW¼, S½NE¼, SE¼	320.00	Level to steep breaks	45	1	50/IV:270/VII	1	Private
		20	E½NE¼	80.00	Steep and broken	11	1	VII	1	Private
		21	Lots 1,2,3,4, SE¼	321.04	Rolling to steep breaks	34	1	120/VI:201.04/VII	1	Private
		22	All	640.00	Rolling to steep breaks	70	1	80/VI:560/VII	1	Private
		25	N½	320.00	Level to rolling	62	1	80/IV:240/VI	1	Private
		26	Lots 1,2,3,4,6,7,8, N½NE¼,SW¼NE¼,SW¼	564.97	Level to rough and broken	55	1	80/VI:484.97/VII	1	Private
		27	S½	320.00	Level to rough and broken	50	1	40/IV:160/VI:120/VII	1	Private
		28	NE¼, NE¼SE¼	200.00	Level to rough and broken	42	1	60/IV:60/VI:80/VII	1	Private
		30	Lot 2	39.30	Rolling to rough	8	1	20/VI:19.30/VII	1	Private
		31	NE¼SE¼	40.00	Rolling	7	1	VI	1	Private
		32	W½NE¼,NE¼NW¼,SE¼SW¼	160.00	Rolling	29	1	VI	1	Private
		33	NW¼SE¼, SE¼SE¼	80.00	Level to rolling	15	1	40/IV:40/VI	1	Private
		34	NW¼SW¼, S½S½	200.00	Level to rolling	37	1	80/IV:120/VI	1	Private
		34	NW¼NE¼, SE¼NE¼	80.00	Steep and broken	11	1	VII	1	Private
		35	Lots 1,2,3,4, W½E½, NE¼NW¼	363.20	Rolling to steep breaks	53	1	40.20/VI:323/VII	1	Private
33	23	1	Lots 1, 2, S½NE¼, SE¼	320.16	Gently sloping	82	1	10/IV:310.16/VI	1	State
		25	N½SE¼	80.00	Steep hills	14	1	VII	1	State
		26	E½NW¼, NE¼SW¼	120.00	Rolling to steep hills	27	1	80/VI:40/VII	1	State
		27	S½SE¼	80.00	Rolling hills	18	1	VI	1	State
		29	W½SW¼	80.00	Gently rolling to steep	16	1	40/VI:40/VII	1	Private
		32	NE¼NW¼, NE¼SE¼	80.00	Gently rolling to steep	16	1	40/VI:40/VII	1	Private
		35	W½W½, SE¼SW¼	200.00	Gently rolling to steep	44	1	160/VI:40/VII	1	Private
		35	NE¼, E½SE¼	240.00	Rolling to steep hills	54	1	160/VI:80/VII	1	State

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Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Blaine County										
33	24	9	SE¼NE¼	40.00	Gently rolling	10	1	VI	1	State
		11	NW¼NW¼	40.00	Gently rolling hills	10	1	VI	1	State
		25	SW¼SW¼	40.00	Gently rolling to steep	9	1	30/VI:10/VII	1	Private
		31	E½	320.00	Level to rough and broken	57	1	120/VI:200/VII	1	Private
33	25	1	Lots 1,2,3,4,SW¼NE¼, S½NW¼	279.20	Level to rolling hills	71	1	239.20/IV:40/VI	1	Private
		2	SW¼SE¼	40.00	Rolling hills	9	1	VI	1	Private
		3	S½NE¼, SE¼NW¼	120.00	Rolling hills	29	1	VI	1	Private
		4	Lot 4	39.12	Rolling hills	9	1	VI	1	Private
		5	SE¼SE¼	40.00	Nearly level creek bottom	10	1	IV	1	Private
		8	S½NW¼	80.00	Broken hills	10	1	VII	1	Private
		14	SE¼SW¼	40.00	Level	12	1	IV	1	Private
		17	SE¼SE¼, SE¼SW¼	80.00	Nearly level creek bottom	25	1	IV	1	Private
		22	E½SE¼	80.00	Level to rolling	22	1	40/IV:40/VII	1	Private
		23	NW¼NE¼, SW¼SE¼	80.00	Level to rolling	21	1	20/IV:60/VII	1	Private
		30	Lot 3	39.06	Gently sloping	10	1	VI	1	Private
		32	N½NE¼	80.00	Rolling hills	20	1	VI	1	Private
33	26	6	Lots 5, 6	78.94	Nearly level to rolling	19	1	39.50/IV:39.44/VII	1	Private
		6	E½SE¼	80.00	Nearly level to rolling	18	1	VI	1	Private
		8	NW¼NE¼,SE¼NW¼,NE¼SW¼	120.00	Rolling and marsh	14	1	40/VI:80/VII	1	Private
		9	SW¼SW¼	40.00	Rolling to shallow breaks	9	1	VI	1	Private
34	18	4	SW¼NE¼	40.00	Rough and broken	5	1	VII	1	Private
		32	N½SW¼, Lot 1	117.95	Rolling to rough	27	1	59/VI:58.95/VII	1	Private
		34	Lot 4	33.96	Rolling to rough	6	1	10/VI:23.96/VII	1	Private
34	19	10	SE¼SW¼	40.00	Gently sloping	8	1-7	35/VI:5/VIII	1-7	Private
		17	NE¼NW¼	40.00	Rolling hills	7	1	VI	1	Private

-Continued

Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Blaine County										
34	19	23	NW¼NE¼,SE¼NW¼,SW¼, NE¼SE¼,W½SE¼,S½NE¼	440.00	Rolling to steep hills	80	1	160/VI:280/VII	1	State
		26	N½NE¼, SE¼NE¼	120.00	Rolling to steep hills	22	1	40/VI:80/VII	1	State
		26	NW¼SW¼	40.00	Rolling	8	1	VI	1	State
		34	E½SE¼	80.00	Level to rough and steep	17	1-4	10/IV:70/VII	1-4	State
		35	E½E½	160.00	Rough breaks	13	1	VII	1	State
34	20	13	SE¼SE¼	40.00	Gently sloping	7	1	VI	1	Private
		28	SE¼NE¼	40.00	Gently sloping	8	1	VI	1	Private
34	21	6	SE¼NE¼, NW¼SE¼	80.00	Level to rolling	17	1	VI	1	Private
		7	NW¼NE¼	40.00	Rolling and scabby	9	1	VI	1	Private
		8	N½NE¼, SW¼NE¼	120.00	Rolling to rough	19	1	VI	1	Private
		14	SW¼NW¼	40.00	Rolling	14	1	VI	1	Private
		22	SW¼SW¼, E½SE¼	120.00	Rolling to rough	18	1	50/VI:70/VII	1	Private
		23	SW¼SW¼, S½SE¼	120.00	Rough and broken	14	1	VII	1	Private
		24	SW¼SW¼,E½SE¼,SW¼SE¼	160.00	Rolling to rough	22	1	20/VI:140/VII	1	Private
		25	N½NE¼,W½NW¼,SW¼	320.00	Rolling to rough	44	1	60/VI:260/VII	1	Private
		26	SE¼SE¼	40.00	Rolling	11	1	VI	1	Private
		30	SE¼SW¼	40.00	Gently rolling	9	1	VI	1	Private
		31	NE¼NW¼	40.00	Gently rolling	9	1	VI	1	Private
34	22	7	SE¼	160.00	Rolling to rough	35	1	70/VI:90/VII	1	Private
		10	S½NW¼	80.00	Rolling to rough	13	1	30/VI:50/VII	1	Private
		18	Lot 1, NW¼NE¼	77.04	Rough to rolling	15	1	20/VI:57.04/VII	1	Private
		19	Lot 3	37.34	Rough	5	1	VII	1	Private
		25	NW¼NE¼, N½NW¼	120.00	Rolling	28	1	VI	1	Private
		31	Lots 1,2,3,4,NE¼NW¼	192.08	Rough	29	1	VII	1	Private
34	23	8	SE¼NE¼	40.00	Rolling upland	12	1	VI	1	Private
		17	SW¼SE¼, S½SW¼	120.00	Rolling upland	32	1	VI	1	Private

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Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Blaine County										
34	23	18	SE¼NW¼	40.00	Rolling upland	10	1	VI	1	Private
		22	SE¼, E½SW¼	240.00	Rolling upland and breaks	59	1	VI	1	Private
		26	SW¼SE¼	40.00	Rolling upland and breaks	11	1	VI	1	Private
		27	N½NW¼	80.00	Rolling upland and breaks	16	1	VI	1	Private
		35	SE¼NW¼	40.00	Rolling upland and breaks	11	1	VI	1	Private
34	24	23	NE¼NE¼, SW¼SW¼	80.00	Rolling upland	22	1	VI	1	Private
		24	SW¼SW¼	40.00	Rolling upland	11	1-4	10/IV:30/VI	1-4	Private
		26	S½NE¼	80.00	Rolling upland	22	1	VI	1	Private
		27	SE¼SE¼	40.00	Rolling upland	11	1	VI	1	Private
		29	N½SE¼	80.00	Rolling upland	20	1	VI	1	Private
34	25	2	S½SW¼	80.00	Rolling hills	24	1	VI	1	Private
		3	W½SE¼, E½SW¼	160.00	Rolling hills	48	1	VI	1	Private
		4	Lot 2	39.78	Level	12	1	IV	1	Private
		20	NE¼SE¼, SW¼SE¼	80.00	Rolling hills	20	1	VI	1	Private
		25	SW¼SW¼	40.00	Rolling hills	9	1	VI	1-2	Private
		26	S½NE¼, SE¼	240.00	Rolling hills	53	1	VI	1-2	Private
		32	S½N½,N½SE¼,SE¼SE¼	280.00	Level to rolling hills	56	1	160/IV:120/VI	1	Private
		33	SW¼NE¼,NW¼,N½SW¼,SW¼SW¼	320.00	Level to rolling	73	1	80/IV:240/VI	1	Private
35	17	12	SW¼SE¼,SE¼SW¼	80.00	Rolling to rough	24	1	40/VI:40/VII	1	Private
		13	SE¼NE¼,W½NE¼	120.00	Rolling to rough	36	1	60/VI:60/VII	1	Private
		15	NE¼	160.00	Rolling upland	40	1	VI	1	Private
35	18	12	SE¼SW¼	40.00	Rolling upland and level	10	1	VI	1	Private
		18	Lots 2,3, NE¼SW¼	122.20	Rolling to rough	37	1	61.10/VI:61.10/VII	1	Private
		23	SE¼	160.00	Mostly underwater-rolling	4	1-2	15/VI:145/VIII	2	Federal
		24	SW¼	160.00	Mostly underwater	--	2	VIII	2	Federal
		29	SE¼NW¼	40.00	Level to rolling	14	1	30/IV:10/VI	1-4	Private

-Continued

Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Blaine County										
35	19	20	NE¼SE¼	40.00	Steep hills	8	1	VII	1	Private
		26	N½	320.00	Nearly level to rolling	57	1	60/IV:260/VII	1-4	Private
		27	NE¼SE¼	40.00	Rolling hills to steep	6	1	VII	1	Private
		30	SE¼SE¼	40.00	Gently slope to rolling	6	1	15/IV:25/VI	1	Private
		35	E½SE¼	80.00	Gently slope to rolling	12	1	40/VI:40/VII	1	Private
35	20	10	SW¼NE¼	40.00	Gently sloping	8	1	VI	1	Private
		14	NE¼SE¼	40.00	Gently sloping-scabby	7	1	VII	1	Private
		25	NW¼NW¼	40.00	Gently sloping	1	1-7	3/VI:37/VIII	1-7	Private
35	21	1	E½SE¼	80.00	Rolling upland	22	1	VI	1	Private
		12	NE¼ S½NW¼	240.00	Rolling upland	67	1	VI	1	Private
		13	NE¼, E½NW¼, NW¼NW¼	280.00	Rolling upland	79	1	VI	1	Private
		14	NE¼NE¼	40.00	Rolling upland	11	1	VI	1	Private
		24	W½SE¼	80.00	Rolling upland	20	1	VI	1	Private
35	22	1	SE¼SW¼	40.00	Gently rolling	12	1	VI	1	Private
		4	Lots 2, 3, SE¼NW¼ E½SW¼, S½NE¼, SE¼	440.74	Rolling	115	1	VI	1	Private
		5	Lot 4, NW¼SW¼	79.94	Rolling	22	1	VI	1	Private
		6	Lot 1	39.91	Rolling	12	1	VI	1	Private
		7	S½NE¼	80.00	Rough	16	1	VII	1	Private
		8	NW¼	160.00	Rough	32	1	VII	1	Private
		9	NW¼NE¼	40.00	Rolling	10	1	VI	1	Private
		17	SW¼SE¼	40.00	Rolling	10	1	VI	1	Private
		18	NW¼SE¼, NE¼SW¼	80.00	Rough	14	1	VII	1	Private
		19	SW¼SE¼	40.00	Rolling	10	1	VI	1	Private
		21	E½, N½NW¼	400.00	Rolling	100	1	VI	1	Private
		25	NW¼SE¼, E½SW¼,NW¼SW¼	160.00	Rolling to rough	29	1	VII	1	Private

-Continued

Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Blaine County										
35	22	32	W½W½	160.00	Rolling	26	1	VI	1	Private
		33	E½E½	160.00	Rolling to rough	31	1	100/VI:60/VII	1	Private
		34	W½	320.00	Rolling to rough	62	1	200/VI:120/VII	1	Private
		35	SW¼SW¼,SW¼SE¼	80.00	Rolling	20	1	VI	1	Private
35	23	19	Lot 1, NE¼NW¼	76.81	Gently rolling to sloping	23	1-4	10/III:66.81/VI	1-4	Private
		21	NE¼SW¼, S½S½	200.00	Glaciated rolling upland	54	1	VI	1	Private
		29	W½SW¼	80.00	Gently rolling to sloping	20	1-4	5/III:75/VI	1-4	Private
		31	NE¼NE¼	40.00	Gently rolling to sloping	11	1	VI	1	Private
		34	NW¼NW¼,NW¼NE¼,S½NW¼, N½SW¼	240.00	Glaciated rolling upland	65	1	VI	1	Private
36	17	10	W½SW¼	80.00	Rolling upland	23	1	VI	1	State
		11	S½NW¼	80.00	Rolling upland	20	1	VI	1	Private
		15	N½NW¼	80.00	Rolling upland	23	1	VI	1	State
36	18	8	NE¼SW¼	40.00	Rolling upland	11	1	VI	1	Private
36	19	5	Lot 1	50.76	Gently sloping	14	1	VI	1	Private
36	20	10	NE¼NW¼	40.00	Gently sloping	8	1	VI	1	Private
36	21	1	W½SW¼	80.00	Rolling upland	22	1	VI	1	Private
		14	NW¼SE¼, SW¼	200.00	Rolling to shallow breaks	49	1	70/VI:130/VII	1	Private
		15	E½SE¼, SW¼SE¼	120.00	Rolling to shallow breaks	30	1	50/VI:70/VII	1	Private
		34	NE¼NE¼	40.00	Rolling to shallow breaks	11	1	VI	1	Private
36	22	2	Lots 1, 4	38.46	Rolling upland	11	1	VI	1	Private
		3	Lot 1	19.31	Rolling upland	5	1	VI	1	Private
		14	SE¼NE¼	40.00	Rolling upland	13	1	VI	1	Private
		15	SE¼SW¼	40.00	Rolling upland	12	1	VI	1	Private
		19	Lot 3	33.23	Rolling upland	10	1	VI	1	Private
		20	NW¼NW¼	40.00	Rolling upland	12	1	VI	1	Private
		21	S½SW¼	80.00	Rolling upland	24	1	VI	1	Private

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Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Blaine County										
36	22	31	SE¼NW¼, SE¼NE¼	80.00	Rolling upland	24	1	VI	1	Private
		32	SW¼SE¼, SW¼, S½NW¼	280.00	Rolling upland	84	1	VI	1	Private
36	24	2	SW¼NW¼, N½SW¼	120.00	Level to rolling	30	1-4	20/IV:100/VI	1-4	Private
		3	Lots 3, 4	38.80	Rolling upland	8	1	VI	1	Private
		10	E½NE¼	80.00	Level to rolling	22	1	40/IV:40/VI	1-4	Private
		15	S½N½	160.00	Rolling upland	40	1	VI	1	Private
		32	NW¼SE¼	40.00	Level with shallow draw	—	4	III	4	Private
37	17	10	E½NW¼	80.00	Rolling upland	22	1	VI	1	Private
		12	SW¼SW¼	40.00	Rolling upland	9	1	VI	1	Private
		13	SE¼NE¼	40.00	Rolling upland	9	1	VI	1	Private
		22	E½NE¼, NW¼NE¼	120.00	Rolling upland	30	1	VI	1	Private
		23	NE¼NE¼	40.00	Rolling upland	10	1	VI	1	Private
37	18	6	NE¼SW¼	40.00	Rolling upland	10	1	VI	1	Private
		13	NE¼SW¼	40.00	Rolling hills	10	1	VI	1	Private
37	19	6	Lot 12	29.58	Gently sloping	7	1	VI	1	Private
37	20	1	Lot 12	24.56	Gently sloping to rolling	7	1	IV	1	Private
		5	Lot 9	26.27	Gently sloping	7	1	IV	1-4	Private
		6	Lots 6, 7, E½SW¼, SE¼	317.79	Gently sloping	84	1	IV	1-4	Private
		26	SE¼SW¼	40.00	Gently sloping	12	1	15/IV:25/VI	1-4	Private
37	21	2	Lots 9,10,11, 12	88.72	Rolling upland	27	1	VI	1	Private
		3	Lot 12	22.59	Rolling upland	7	1	VI	1	Private
		4	Lot 9	23.08	Rolling upland	7	1	VI	1	Private
		5	Lots 10,11,12, NW¼SW¼, SW¼NE¼	149.42	Rolling upland	43	1	VI	1	Private
		15	N½NE¼, SW¼SW¼	120.00	Rolling upland	34	1	VI	1	Private
		22	SE¼NW¼	40.00	Rolling upland	12	1	VI	1	Private

-Continued

Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Blaine County										
37	22	2	Lot 12	19.38	Rolling to rough	6	1	VI	1	Private
		5	Lots 9,10,11,12	82.08	Rolling upland	24	1	VI	1	Private
		6	Lots 13, 14	42.16	Rolling upland	13	1	VI	1	Private
		12	Lot 3	41.01	Rolling to rough	10	1	36.01/VI:5/VII	1	Private
37	23	2	Lot 9	21.83	Rough and broken	5	1	VII	1	Private
		3	Lots 10,11, 12	65.96	Rough and broken	15	1	VII	1	Private
		6	Lots 12,13,14, 15	85.40	Rolling to rough	24	1	70.40/VI:15/VII	1	Private
		12	S½	320.00	Rolling to rough	55	1	195/VI:125/VIII	1	Private
		13	N½	320.00	Rolling to rough	22	1	80/VI:240/VIII	1	Private
37	24	3	Lot 12	24.48	Gently sloping	8	1	VI	1	Private
		4	Lot 12	23.73	Gently sloping	8	1	VI	1	Private
		6	Lots 12,13,14,5,6,7, SW¼NE¼, SE¼NW¼, E½SW¼, W½SE¼, SE¼SE¼	465.77	Rolling to rough	120	1	182.68/VI:283.09/VII	1	Private
		7	Lot 1, NE¼NE¼, W½NE¼, E½NW¼	239.88	Rolling to rough	67	1	169.91/VI:69.97/VII	1	Private
		15	NW¼NW¼	40.00	Rolling hills	10	1	VI	1	Private
		20	W½SW¼	80.00	Level wet saline lowland	32	1	V	1	Private
		25	S½NW¼	80.00	Level to rolling	10	1	10/III:70/VI	1-4	Private
		26	NE¼SE¼	40.00	Level to rolling	20	1	20/IV:20/VI	1-4	Private
		28	NE¼NW¼, SW¼SW¼	80.00	Level to shallow breaks	19	1	5/IV:20/VI:55/VII	1-4	Private
		29	SE¼SE¼, NW¼	200.00	Level to shallow breaks	58	1	40/V:130/VI:30/VII	1	Private
		30	NE¼	160.00	Level to shallow breaks	54	1	80/V:80/VI	1	Private
37	26	9	S½S½	160.00	Rolling hills	48	1	VI	1	Private
		10	W½SW¼	80.00	Rolling hills	24	1	VI	1	Private

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Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Chouteau County										
24	13	2	SW¼SE¼	40.00	Very steep and rough	1	2	VII	2	Private
		10	Lot 3 (Power Site)	24.30	Very steep and rough	1	2	VII	2	Private
		10	NW¼SE¼	40.00	Very steep and rough	1	2	VII	2	Private
24	14	22	SE¼NW¼	40.00	Gently rolling	9	1	IV	1-4	Private
		25	S½SE¼	80.00	Steeply rolling	13	1	VII	1	Private
25	13	1	SE¼NW¼	40.00	Gently to steeply rolling	7	1	VII	1	Private
		4	SW¼NW¼	40.00	Very rough and broken	3	1	VIII	1	Federal
		4	NW¼SW¼ (Power Site)	40.00	Very rough and broken	3	1	VIII	1	Federal
		5	Lot 2,SE¼NE¼ (Power Site)	97.88	Very rough and broken	7	1	VIII	1	Federal
		15	W½NW¼	80.00	Very rough and broken	11	1	VII	1	Private
		22	N½NE¼	80.00	Steeply rolling and broken	13	1	VII	1	Private
		28	Lots 1, 2	52.94	Rough and broken	--	2	VII	2	Federal
		33	Lots 4,5,8, NE¼NE¼	163.68	Rough and broken	4	1	VII	1	Federal
		34	NE¼NW¼,NW¼SW¼, S½SW¼	160.00	Rough and broken	24	1-2	40/VII:120/VIII	1-2	Federal
25	15	14	SW¼NW¼	40.00	Gently to steeply rolling	10	1	VI	1	Private
		21	NE¼SW¼	40.00	Gently to steeply rolling	9	1	VI	1	Private
26	13	5	SW¼SE¼	40.00	Gently to steeply rolling	10	1	VI	1	Private
		8	NE¼SW¼	40.00	Gently to steeply rolling	10	1	VI	1	Private
		17	NE¼NW¼,NE¼SE¼,W½SW¼	160.00	Gently to steeply rolling	35	1	80/VI:80/VII	1	Private
		18	W½SE¼	80.00	Gently to steeply rolling	16	1	VII	1	Private
		19	NW¼SE¼	40.00	Steeply rolling and broken	7	1	VII	1	Private
		29	SW¼SW¼	40.00	Steeply rolling and broken	8	1	VII	1	Private
		30	Lot 4	25.65	Steeply rolling and broken	6	1	VII	1	Private
		32	NW¼NW¼, SE¼NW¼	80.00	Steeply rolling and broken	17	1	VII	1	Private
26	15	11	NE¼NW¼, NW¼NE¼	80.00	Steeply rolling and broken	16	1	VII	1	Private
		20	SW¼SE¼, SE¼SW¼	80.00	Steeply rolling and broken	26	1	VI	1	Private
		21	N½SW¼, NW¼SE¼	120.00	Steeply rolling and broken	34	1	VI	1	Private

-Continued

Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Chouteau County										
26	15	34	SE¼SE¼	40.00	Gently to steeply rolling	14	1	VI	1	Private
26	16	2	SE¼SW¼	40.00	Very steeply rolling	9	1	VII	1	Private
		3	Lot 1, NE¼SE¼	79.96	Very steeply rolling	18	1	VII	1	Private
		5	N½SW¼, SE¼SW¼	120.00	Very steeply rolling	20	1	VII	1	Private
		8	E½NW¼	80.00	Very steeply rolling	14	1	VII	1	Private
		9	E½E½	160.00	Very steep and rough	21	1	VII	1	Private
		10	W½, NE¼, NW¼SE¼	520.00	Very steep and rough	68	1	VII	1	Private
		11	NW¼SW¼	40.00	Very steep and rough	5	1	VII	1	Private
		15	NW¼, N½SW¼	240.00	Very steep and rough	31	1	VII	1	Private
		17	E½NE¼	80.00	Very steep	13	1	VII	1	Private
		18	Lot 1	34.47	Very steeply rolling	8	1	VII	1	Private
		20	NW¼NE¼,S½NE¼,N½NE¼	200.00	Very steep and broken	24	1	VII	1	State
		21	S½NW¼, SW¼	240.00	Very steep and broken	29	1	VII	1	State
		28	N½NW¼,SW¼NW¼,N½SW¼	200.00	Very steep and broken	24	1	VII	1	State
		29	E½SE¼, SW¼SE¼	120.00	Very steep and broken	14	1	VII	1	State
		30	NE¼SE¼	40.00	Very steeply rolling	8	1	VII	1	State
		32	NW¼, W½NE¼	240.00	Very steep and broken	29	1	VII	1	State
		33	SE¼SW¼	40.00	Steeply rolling	9	1	VII	1	State
		34	SE¼NE¼	40.00	Very steep and broken	5	1	VII	1	State
26	17	4	SE¼SW¼	40.00	Very steeply rolling	5	1	VII	1	Private
		20	NE¼ S½NW¼	240.00	Steeply rolling	55	1	VII	1	Private
		21	N½NW¼, NW¼NE¼	120.00	Steeply rolling	28	1	VII	1	Private
27	15	1	Lot 4	39.74	Very steep	9	1	VI	1	Private
		2	Lot 3,SE¼NE¼,N½SW¼	159.98	Very steep	33	1	120/VI:39.98/VII	1	Private
		9	NE¼NW¼	40.00	Very steep	5	1	VII	1	Private
		13	SW¼NE¼,NW¼SE¼,NE¼SW¼	120.00	Very steep	38	1	VII	1	Private
		23	SW¼SW¼	40.00	Very steep	9	1	VII	1	Private

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Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian										
Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Chouteau County										
27	15	26	W½NW¼, NW¼SW¼	120.00	Very steep	28	1	VII	1	Private
27	16	1	Lot 1, SW¼NW¼	79.93	Very steep	15	1	VII	1	Private
		2	SE¼NE¼	40.00	Very steep	10	1	VII	1	Private
		5	SW¼SE¼	40.00	Steeply rolling	4	1	VII	1	Private
		7	Lot 3, NE¼SW¼	71.25	Steeply rolling	14	1	VII	1	Private
		11	NW¼SE¼	40.00	Very steep	11	1	VII	1	Private
		24	NE¼NE¼	40.00	Very steep	8	1	VII	1	Private
		29	NE¼NE¼, NE¼NW¼	80.00	Steeply rolling	16	1	VII	1	Private
27	17	21	NW¼SE¼	40.00	Very steep	6	1	VII	1	Private
		28	NW¼NE¼	40.00	Very steep	6	1	VII	1	Private
		30	SE¼NW¼	40.00	Steeply rolling	7	1	VII	1	Private
		33	SE¼SE¼	40.00	Steeply rolling	7	1	VII	1	Private
Phillips County										
28	29	5	NE¼SW¼	40.00	Gently rolling	8	1	VI	1	Private
		8	SW¼SW¼	40.00	Gently rolling	8	1	VI	1	Federal
		9	SE¼SE¼	40.00	Gently rolling	10	1	VI	1	Private
		17	NE¼	160.00	Gently rolling	34	1	VI	1	Federal
		22	E½	320.00	Gently rolling	64	1	VI	1	Federal
		23	SW¼NW¼	40.00	Gently rolling	8	1	VI	1	Federal
		29	NE¼NW¼	40.00	Rolling	9	1	VI	1	Federal
28	30	1	S½NW¼	80.00	Moderately rolling	19	1	VI	1	Private
		29	SE¼NW¼	40.00	Moderately rolling	8	1	VI	1	Private
28	31	5	Lot 3, SE¼SE¼	80.21	Level to rolling	20	1-4	10/III:30/IV:40.21/ VII	1-4	Private

-Continued

Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian										
Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Phillips County										
29	26	23	Lots 1, 2	14.71	Level to rolling	4	1-4	IV	1-4	Private
		26	Lot 1	13.40	Level to rolling	4	1-4	IV	1-4	Private
29	27	8	W½NE¼	80.00	Gently rolling	20	1	VI	1	Private
		17	NE¼NW¼	40.00	Gently rolling	11	1	18/IV:22/VI	1-4	Private
		28	NE¼NW¼	40.00	Undulating	10	1	VI	1	Federal
29	28	20	N½NE¼, E½NW¼	160.00	Level to rolling swampy	14	1-2	60/VI:100/VIII	1-2	Private
		24	SW¼NW¼	40.00	Rolling	10	1	VI	1	Private
29	29	1	SW¼NE¼, SW¼NW¼	80.00	Gently rolling	22	1	VI	1	Private
		4	Lots 2,3,4	156.08	Very rough and broken	30	1	VII	1	Private
		8	W½SE¼	80.00	Rolling to steep	22	1	50/VI:30/VII	1	Private
		15	SE¼SE¼	40.00	Steep and broken	7	1	VII	1	Private
		17	N½NE¼	80.00	Gently rolling to steep	24	1	30/V:30/VI:20/VII	1	Private
		17	SE¼SE¼	40.00	Steep	10	1	VII	1	Private
		21	N½NW¼, S½SW¼	160.00	Steep	38	1	VII	1	Private
		22	NW¼NE¼	40.00	Steep and broken	7	1	VII	1	Private
		27	SW¼NW¼	40.00	Gently rolling	10	1	VI	1	Private
		31	Lot 2, SE¼SE¼	80.50	Gently rolling	14	1	VI	1	Private
		32	SW¼SW¼, E½SW¼	120.00	Gently rolling	21	1	VI	1	Private
		33	N½SE¼	80.00	Rolling	18	1	VI	1	Private
		34	E½NE¼, SW¼SE¼	120.00	Rolling	32	1	VI	1	Private
29	30	2	Lot 9	40.00	Moderately rolling	11	1	VI	1	Private
		13	NW¼NE¼	40.00	Moderately rolling	13	1	5/IV:35/VI	1	Private
		24	S½SW¼	80.00	Rolling	14	1	VI	1	Private
		25	S½SE¼	80.00	Rolling	14	1	VI	1	Private
29	31	2	Lots 3, 4	46.64	Rolling	11	1	VI	1	Private
		3	Lot 1, S½SE¼	102.69	Sloping to rough	20	1	22.69/VI:80/VII	1	Private
		5	Lots 2, 3, 4	66.15	Gently sloping	17	1	17.91/IV:48.24/VI	1-4	Private

-Continued

Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Phillips County										
29	31	6	Lots 1, 2, 3	66.98	Gently sloping	17	1	15/IV:51.98/VI	1-4	Private
		12	SW¼NW¼, NW¼SW¼	80.00	Rolling to rough and steep	14	1	VII	1	Private
		29	SW¼NW¼	40.00	Moderately rolling	12	1	VI	1	Private
		32	SE¼SW¼	40.00	Level to rolling	14	1	IV	1	Private
30	26	1	Lot 1	9.90	Level bottomland	4	1	IV	4	Private
30	27	1	E½SE¼, SW¼SE¼	120.00	Gently to steeply rolling	18	1	VI	1	Private
		3	Lots 1, 2	80.42	Nearly level	4	4	50.42/III:30/IV	4	Private
		7	S½NE¼	80.00	Rolling	20	1	VI	1	Private
		8	SE¼NW¼, SW¼NE¼	80.00	Rolling	20	1	VI	1	Private
		8	Lot 3	16.00	Level bottomland	5	1	IV	4	Private
		9	Lot 2	13.07	Level bottomland	4	1	IV	4	Private
		23	NE¼SE¼	40.00	Level to broken	8	1-4	15/IV:25/VII	1-4	Private
		25	SE¼NE¼	40.00	Rough and broken	7	1	VII	1	Private
30	28	12	NW¼SW¼, N½SE¼	120.00	Moderately rolling	28	1	VI	1	Private
		20	SE¼SW¼	40.00	Rolling	11	1	VI	1	Private
		20	E½SE¼	80.00	Rolling and broken	22	1	VI	1	Private
		25	SW¼SW¼	40.00	Rolling and broken	11	1	VI	1	Private
		26	S½SE¼NE¼,SW¼NE¼,NW¼NW¼	100.00	Rolling and broken	27	1	VI	1	Private
		27	S½NE¼	80.00	Rolling and broken	22	1	VI	1	Private
		28	NE¼SW¼	40.00	Level to rolling	10	1-4	14/IV:26/VI	1-4	Private
		30	E½SE¼	80.00	Level to rolling	21	1-4	36/IV:44/VI	1-4	Private
30	29	31	SW¼NE¼,SE¼SW¼,SW¼SE¼	120.00	Rolling to steep	30	1	VI	1	Private
31	26	3	Lot 4	39.88	Rough and broken	4	1	VII	1	Private
		22	NE¼NE¼	40.00	Rolling	11	1	VI	1	Private
31	27	20	SW¼NW¼,SE¼SE¼	80.00	Rolling to rough	18	1	40/VI:40/VII	1	Private
		25	E½E½,W½SE¼,E½W½	400.00	Rolling to rough	91	1	160/VI:240/VII	1	Private
		26	SW¼SE¼	40.00	Rolling	11	1	VI	1	Private

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Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Phillips County										
31	27	27	N½SE¼	80.00	Rolling to rough	16	1	30/VI:50/VII	1	Private
		28	N½NE¼, SE¼NE¼	120.00	Rolling	34	1	VI	1	Private
		35	NW¼NE¼, N½NW¼	120.00	Rolling to rough	28	1	40/VI:80/VII	1	Private
31	28	30	Lot 1	42.57	Rolling to rough	10	1	20/VI:22.57/VII	1	Private
32	26	24	E½NW¼	80.00	Rolling to broken	17	1	40/VI:40/VII	1	Private
		25	S½SW¼	80.00	Level to rough and broken	15	1	20/IV:60/VII	1	Private
		26	NW¼SW¼, S½S½	200.00	Rolling to rough and broken	34	1	50/VI:150/VII	1	Private
		27	E½SE¼	80.00	Rolling to rough and broken	16	1	40/VI:40/VII	1	Private
		34	N½NE¼,SW¼,S½SE¼	320.00	Rolling to rough and broken	60	1	60/IV:100/VI:160/VII	1	Private
		35	N½N½,SE¼NW¼,NE¼SW¼	240.00	Rolling to rough and broken	46	1	110/VI:130/VII	1	Private
32	27	6	Lot 2, SW¼NE¼	86.51	Very rough and broken	19	1	VII	1	Private
		8	S½SW¼	80.00	Very rough and broken	18	1	VII	1	Private
		13	S½NE¼	80.00	Rolling	21	1	VI	1	Private
32	28	20	NW¼SE¼	40.00	Rolling	8	1	VI	1	Private
		23	SW¼NW¼	40.00	Moderately sloping	10	1	VI	1	Private
		29	NW¼NE¼, N½NW¼	120.00	Rolling	30	1	VI	1	Private
32	33	3	E½SE¼	80.00	Gently rolling to steep	19	1	32/IV:48/VII	1-4	Private
32	34	3	Lot 3	42.98	Sharply rolling	8	1	VI	1	Private
		7	NE¼NW¼	40.00	Sharply rolling	8	1	25/VI:15/VII	1	Private
		12	SW¼SE¼	40.00	Rolling to steep	4	1-2-7	13/IV:10/VI:17/VIII	1-2-7	Federal
		13	NW¼NE¼	40.00	Rolling to steep	5	1-2-7	10/IV:15/VI:15/VIII	1-2-7	Federal
		18	NE¼NE¼	40.00	Nearly level	10	1	IV	1-4	Private
		22	Lot 3	21.00	Nearly level	5	1	IV	1-4	Private
		27	Lot 4	.64	Level	--	1	IV	4	Private
32	35	17	S½S½	160.00	Level to rough and broken	45	1	40/IV:30/V:90/VII	1-4	Private
		20	NE¼NW¼	40.00	Level	16	1	IV	1-4	Private
33	26	14	NW¼NE¼, N½NW¼	120.00	Level to rolling	25	1-4	IV	1-4	Private

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Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Phillips County										
33	27	26	NE¼NE¼, SE¼SE¼	80.00	Level	18	1	IV	1-4	Private
		27	NE¼SE¼	40.00	Level	3	1-4	IV	1-4	Private
33	33	3	Lot 3	41.41	Rolling	8	1	VI	1	Private
		4	Lot 3,SE¼NW¼,NW¼SE¼	120.26	Rolling	28	1	VI	1	Private
		9	SE¼NE¼,NE¼SE¼,S½SE¼	160.00	Steep and broken	27	1	70/VI:90/VII	1	Private
		10	E½NW¼,SW¼NW¼,W½SW¼	200.00	Steep and broken	34	1	70/VI:130/VII	1	Private
		15	NW¼NW¼	40.00	Steep and broken	7	1	VII	1	Private
		33	NW¼SW¼	40.00	Rolling to rough	10	1	VII	1	Private
		35	NE¼SW¼, SE¼NW¼	80.00	Nearly level	14	1	VI	1	State
33	34	1	Lots 1,2,3,4,S½N½,NW¼SW¼	347.60	Moderately rolling	73	1	VI	1	Private
		1	SE¼SE¼	40.00	Moderately rolling to steep	9	1	28/VI:12/VIII	1	Private
		11	SW¼SW¼	40.00	Moderately rolling	6	1	VI	1	Private
		14	SE¼SE¼	40.00	Steep breaks	7	1	VII	1	Private
		25	SE¼	160.00	Gently rolling	40	1	VI	1	Private
		34	N½SW¼, NW¼SE¼	120.00	Level	42	1	80/IV:40/V	1-4	Private
34	29	14	NE¼	160.00	Rolling to steep and broken	37	1	25/IV:135/VII	1-4	Private
34	30	22	W½SE¼	80.00	Rolling to rough	23	1	60/VI:20/VII	1	Private
		25	E½NW¼,NE¼SW¼,NW¼SE¼	160.00	Rolling to rough	31	1	27/IV:133/VI	1-4	Private
		34	SE¼	160.00	Rolling to rough	42	1	70/IV:90/VI	1-4	Private
34	33	6	Lot 2	40.36	Rolling	12	1	VI	1	Private
		11	NW¼SW¼	40.00	Rolling	12	1	IV	1-4	Private
		15	NW¼SW¼	40.00	Gently rolling	12	1	IV	1-4	Private
		19	NE¼SE¼	40.00	Steep	8	1	VII	1	Private
		20	W½SW¼, SE¼SW¼	120.00	Steep	25	1	VII	1	Private
		21	S½SW¼,SW¼SE¼	120.00	Rolling	31	1	VI	1	Private
		27	S½NW¼,NE¼SW¼,S½SW¼	200.00	Rolling to steep	36	1	VII	1	Private
		28	NW¼NE¼, N½NW¼	120.00	Rolling	31	1	VI	1	Private

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Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Phillips County										
34	33	28	SE¼SE¼, S½SW¼	120.00	Rolling	17	1	110/VI:10/VII	1	Private
		29	W½SE¼, E½W½	240.00	Steep	50	1	VII	1	Private
		33	NE¼, E½W½,W½SE¼,NE¼SE¼	440.00	Rolling	109	1	370/VI:70/VII	1	Private
		34	SW¼SW¼	40.00	Steep	7	1	VII	1	Private
34	34	1	Lots 1,2,3,S½NE¼,SE¼NW¼	233.06	Steep and broken	77	1	VII	1	Private
		2	Lot 4, SW¼SE¼	78.47	Rough and broken	6	1	VII	1	Private
		9	SW¼SW¼, SW¼SE¼	80.00	Rolling	18	1	VI	1	Private
		12	SW¼NE¼	40.00	Steep and broken	12	1	VII	1	Private
		13	SW¼SE¼, E½SE¼	120.00	Rolling to rough	33	1	90/VI:30/VII	1	Private
		23	NE¼SE¼	40.00	Gently rolling	11	1	15/IV:25/VI	1-4	Private
		23	W½SW¼	80.00	Moderately rolling	24	1	VI	1	Private
		25	S½SE¼	80.00	Steep and broken	16	1	VII	1	Private
		26	NW¼NW¼	40.00	Moderately rolling	13	1	VI	1	Private
		27	N½NE¼	80.00	Moderately rolling	26	1	VI	1	Private
		34	NE¼NE¼	40.00	Gently rolling	12	1	25/IV:15/VI	1-4	Private
35	27	18	SW¼SE¼	40.00	Level to rolling hills	10	1	30/IV:10/VII	1-4	Private
35	29	14	S½S½	160.00	Level to rough	41	1	25/IV:135/VII	1-4	Private
		22	NE¼SE¼, S½SE¼	120.00	Rolling to rough	35	1	35/V:85/VII	1	Private
		23	W½NE¼, N½NW¼,SW¼SW¼	200.00	Level to rough	53	1	60/IV:10/V:130/VII	1-4	Private
		26	SE¼NW¼	40.00	Level to steep	12	1	14/IV:26/VI	1-4	Private
		30	W½NE¼, E½NW¼, Lots 1,2,3, NE¼SW¼	304.48	Very rough and broken	53	1	VII	1	Private
35	30	5	S½NE¼, W½SE¼	160.00	Rolling to rough	40	1	VI	1	Private
		7	Lot 1, NE¼SW¼	74.79	Rough and broken	16	1	VII	1	Private
		8	SE¼NW¼,SW¼SW¼,E½SW¼	160.00	Rolling to rough	37	1	120/VI:40/VII	1	Private
		18	SE¼NE¼, SE¼NW¼	80.00	Rough and broken	17	1	40/VI:40/VII	1	Private

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Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Phillips County										
35	33	1	Lot 1,SW$\frac{1}{4}$,W$\frac{1}{2}$SE$\frac{1}{4}$,SE$\frac{1}{4}$SE$\frac{1}{4}$	319.98	Steep and broken	41	1	VII	1	Private
		19	Lot 1, NE$\frac{1}{4}$NW$\frac{1}{4}$	80.01	Rolling	21	1	15/IV:65.01/VI	1-4	Private
		24	NW$\frac{1}{4}$NE$\frac{1}{4}$	40.00	Rolling to steep	10	1	25/VI:15/VII	1	Private
		30	SW$\frac{1}{4}$NE$\frac{1}{4}$	40.00	Rolling to very rough	9	1	20/IV:20/VII	1-4	Private
		31	NW$\frac{1}{4}$NE$\frac{1}{4}$	40.00	Very rough	10	1	VII	1	Private
35	34	21	NE$\frac{1}{4}$NE$\frac{1}{4}$	40.00	Rolling to steep	8	1	20/VI:20/VII	1	Private
37	27	24	All	640.00	Rolling to rough	160	1	600/VI:40/VII	1	Federal
37	28	6	Lot 5, SE$\frac{1}{4}$NW$\frac{1}{4}$	79.19	Level to rolling hills	23	1	IV	1-4	Private
		23	E$\frac{1}{2}$	320.00	Level to rolling hills	96	1	VI	1	Federal
		26	NW$\frac{1}{4}$	160.00	Level to rolling hills	48	1	VI	1	Federal
		27	NE$\frac{1}{4}$	160.00	Level to rolling hills	48	1	VI	1	Federal
		28	W$\frac{1}{2}$NE$\frac{1}{4}$	80.00	Rolling to rough	24	1	VII	1	Private
37	29	1	W$\frac{1}{2}$SW$\frac{1}{4}$, SE$\frac{1}{4}$SW$\frac{1}{4}$	120.00	Rolling to steep	24	1	VII	1	Federal
		4	SW$\frac{1}{4}$	160.00	Level to rolling	36	1	40/IV:120/VI	1-4	Federal
		5	SE$\frac{1}{4}$	160.00	Level to rolling	39	1	120/IV:40/VI	1-4	Federal
		6	Lots 1, 2, S$\frac{1}{2}$NE$\frac{1}{4}$	147.02	Level to rolling	41	1	80/IV:67.02/VI	1-4	Federal
		7	Lots 1, 2, E$\frac{1}{2}$NW$\frac{1}{4}$,W$\frac{1}{2}$NE$\frac{1}{4}$	236.17	Level to rolling	61	1	108.17/IV:128/VI	1-4	Federal
		18	S$\frac{1}{2}$SE$\frac{1}{4}$	80.00	Level to rolling	22	1	VI	1	Federal
		21	N$\frac{1}{2}$	320.00	Level to rolling	86	1	VI	1	Federal
		23	NW$\frac{1}{4}$SE$\frac{1}{4}$	40.00	Level to rolling	10	1	VI	1	Federal
		24	N$\frac{1}{2}$SE$\frac{1}{4}$, E$\frac{1}{2}$SW$\frac{1}{4}$	160.00	Level to rolling	45	1	30/V:130/VI	1	Federal
37	30	5	S$\frac{1}{2}$	320.00	Level to gentle slopes	64	1	IV	1-4	Federal
		9	E$\frac{1}{2}$	320.00	Gently rolling	80	1	IV	1-4	Federal
		19	E$\frac{1}{2}$NW$\frac{1}{4}$	80.00	Level	19	1	IV	1-4	Federal
		32	NE$\frac{1}{4}$NE$\frac{1}{4}$, E$\frac{1}{2}$SE$\frac{1}{4}$	120.00	Gently sloping	33	1	IV	1-4	Federal

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Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Valley County										
27	40	2	Lot 4, SW$\frac{1}{4}$NW$\frac{1}{4}$,N$\frac{1}{2}$SW$\frac{1}{4}$	163.50	Rough and broken	18	1	VII	1	Private
		3	S$\frac{1}{2}$NE$\frac{1}{4}$, NE$\frac{1}{4}$SE$\frac{1}{4}$	120.00	Rough and broken	13	1	VII	1	Private
27	41	2	Lot 9	2.86	Nearly level	--	2	V	2	Private
		4	Lot 5, SW$\frac{1}{4}$NW$\frac{1}{4}$	80.79	Rolling upland	24	1	VI	1	Private
		25	Lot 3	13.34	Nearly level	4	1	V	1-4	Private
		34	Lot 6	12.61	Nearly level	2	1	V	1	Private
27	42	8	Lot 1	18.78	Nearly level	6	1	V	1	Private
		9	NW$\frac{1}{4}$SW$\frac{1}{4}$	40.00	Rolling to rough	8	1	15/VI:25/VII	1	Private
		10	Lots 1,2,3	67.65	Nearly level	20	1	V	1	Private
28	39	3	Lot 3	31.38	Nearly level	3	2-4	24.51/III:6.87/V	2-4	Private
		4	Lot 1	.49	Nearly level	--	2-4	III	2-4	Private
		5	NE$\frac{1}{4}$SW$\frac{1}{4}$	40.00	Level to rolling	5	1-4	20/III:20/VI	1-4	Private
		18	Lot 2	13.20	Level	--	2	VIII	2	Federal
		26	NE$\frac{1}{4}$NW$\frac{1}{4}$	40.00	Level to rolling	7	4-1	17/III:23/VI	4-1	Private
28	40	20	NE$\frac{1}{4}$SW$\frac{1}{4}$	40.00	Rolling upland	10	1	VI	1	Private
28	41	2	Lot 3,SE$\frac{1}{4}$NW$\frac{1}{4}$,E$\frac{1}{2}$SW$\frac{1}{4}$	161.48	Rolling to steep	35	1	80/VI:81.48/VII	1	Private
		27	W$\frac{1}{2}$SE$\frac{1}{4}$, E$\frac{1}{2}$NW$\frac{1}{4}$	160.00	Level to steep	32	1	20/IV:140/VI	1-4	Private
		32	Lot 2	8.48	Nearly level	3	1-2	V	1-2	Private
		33	Lots 1, 4	2.42	Nearly level	1	1-2	V	1-2	Private
		35	NW$\frac{1}{4}$NW$\frac{1}{4}$	40.00	Rolling upland	10	1	VI	1	Private
29	38	5	Lot 5	2.17	Level	--	2	V	2	Private
		25	Lot 4	.83	Level	--	4	III	4	Private
29	39	27	SE$\frac{1}{4}$SE$\frac{1}{4}$	40.00	Rolling to rough	9	1	VII	1	Private
		33	SW$\frac{1}{4}$NE$\frac{1}{4}$	40.00	Rolling to rough	9	1	20/IV:20/VII	5	Federal
		34	NE$\frac{1}{4}$SE$\frac{1}{4}$	40.00	Rolling to rough	9	1	VII	1	Private
29	40	3	Lots 3, 4, SE$\frac{1}{4}$NW$\frac{1}{4}$	122.51	Rolling to steep	20	1	82.51/VI:40/VII	1	Private
		4	Lot 1	41.36	Rolling to steep	6	1	21.36/VI:20/VII	1	Private

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within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian										
Twp. North Valley	Range East County	Sec.	Subdiviision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capacity Classification	Principal Suitability	Proposed Management
29	41	4	Lot 5	11.48	Nearly flat	5	1	V	1	Private
		5	Lot 2, S½NE¼, SE¼, E½SW¼	360.28	Rolling	37	1	VI	1	Federal
		8	Lot 1, NE¼, E½W½, W½SE¼, SE¼SE¼	478.74	Rolling to moderately steep	61	1	318.74/VI:160/VII	1	Federal
		9	Lot 1	14.68	Nearly flat	7	1	V	1	Private
		9	Lots 3, 4	31.30	Nearly flat	14	1	V	1	Federal
		17	N½NE¼, E½NW¼	160.00	Rolling to steep	20	1	60/VI:100/VII	1	Federal
		20	NE¼	160.00	Rough and broken	35	1	40/VI:120/VII	1	Private
		21	Lot 1	40.36	Nearly flat to rolling	16	1	30.36/V:10/VI	1	Private
		21	Lot 5, W½SW¼	91.77	Nearly flat to steep	20	1	11.77/V:15/VI:65/VII	1	Private
		28	N½NW¼, E½SW¼	160.00	Rolling to steep	29	1	30/VI:130/VII	1	Private
		33	W½SW¼	80.00	Rough and broken	13	1	VII	1	Private
30	35	1	Lot 4	30.38	Rolling hills	8	1	VI	1	Private
		2	Lot 8	40.00	Rolling to steep breaks	8	1	20/VI:20/VII	1	Private
		3	Lots 1,2,3,4,5,6,7,8,9, 10,11,12	440.91	Rolling to badlands	34	1-2	27/VI:310.91/VII:103/VIII	1-2	Private
		4	Lots 5, 6, 7	120.00	Rolling to badlands	13	1-2	8/VI:95/VII:17/VIII	1-2	Private
		5	Lots 3, 4	58.04	Rolling to badlands	4	1-2	15/VI:43.04/VIII	1-2	Private
		6	Lot 14	58.63	Rolling	12	1	VI	1	Private
		7	Lot 4	57.84	Rolling	12	1	VI	1	Private
		19	SE¼NW¼	40.00	Rolling	8	1	VI	1	Private
		31	Lots 1,2,3,4, E½W½, N½NE¼, SW¼NE¼, N½SE¼, SE¼SE¼	623.00	Moderate to steeply rollg	131	1	VII	1	Private
		32	S½NW¼	80.00	Moderate to steeply rollg	17	1	VII	1	Private
30	36	7	Lot 1, NE¼NW¼	78.40	Gently rolling to rough	12	1	20/VI:58.40/VII	1	Private
		7	Lot 4	37.90	Gently rolling to rough	4	1	VII	1	Private
		10	SE¼NE¼	40.00	Gently sloping to rough	4	1	VII	1	Private

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Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Valley County										
30	36	11	Lots 9,10,SW¼NW¼,N½SE¼	196.06	Level to rough and broken	34	1	25/IV:171.06/VII	1-4	Private
		12	Lots 13,14,15,16,17, N½SW¼	269.86	Level to rough and broken	66	1	38/IV:116.54/VI: 115.32/VII	1-4	Private
		26	W½SW¼	80.00	Rolling to rough	16	1	VI	1	Private
		27	E½SE¼	80.00	Rolling to rough	16	1	70/VI:10/VII	1	Private
		34	E½NE¼	80.00	Rolling to rough	12	1	VII	1	Private
		35	W½NW¼	80.00	Rolling to rough	14	1	45/VI:35/VII	1	Private
30	37	5	Lot 6	2.44	Level	--	1	V	1	Private
		7	Lot 14	40.89	Rolling	10	1	VI	1	Private
		8	Lot 4	13.04	Level	2	1	V	1	Private
		15	Lot 4	9.75	Level	1	1	V	1	Private
		15	Lot 11	24.36	Rolling	2	4	III	4	Private
		18	Lots 4, 5	79.46	Steep and broken	13	1	VII	1	Private
		31	SE¼	160.00	Rolling to steep and broken	25	1	80/VI:80/VII	1	Federal
		32	SW¼SW¼	40.00	Rolling to steep and broken	6	1	20/VI:20/VII	1	Federal
		33	SW¼NW¼	40.00	Rolling to steep and broken	5	1-4	7/IV:33/VII	1-4	Private
30	38	2	Lot 4	39.99	Steep and broken	7	1	VII	1	Private
		3	Lot 4, SW¼NW¼	79.60	Level to steep and broken	17	1	16/IV:63.60/VII	1-4	Federal
		3	SE¼SE¼	40.00	Steep and broken	7	1	VII	1	Private
		4	Lots 3,4,NE¼SE¼	119.17	Moderately rolling	34	1	40/IV:79.17/VI	1-4	Federal
		10	SE¼SE¼	40.00	Steep and broken	7	1	VII	1	Private
		12	NE¼NW¼	40.00	Rolling to level	12	1	IV	1-4	Federal
		15	S½NW¼	80.00	Rolling to level	22	1	26/IV:54/VI	1-4	Federal
30	39	2	SE¼NW¼, SW¼ 4/	200.00	Rolling to steep	32	1	70/VI:130/VII	1	Federal
		3	E½SE¼ 4/	80.00	Rolling to steep	17	1	60/VI:20/VII	1	Federal
		4	SW¼NW¼	40.00	Gently rolling	12	1	IV	1-4	Federal
		7	E½NW¼	80.00	Steep and broken	14	1	VII	1	Federal

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within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Valley County										
30	39	10	NE¼, NE¼SE¼ 4/	200.00	Rolling to steep	28	1	40/VI:160/VII	1	Federal
		11	SW¼ 4/	160.00	Rolling to steep	19	1	10/VI:150/VII	1	Federal
		14	NW¼NE¼, E½W½ 4/	200.00	Rolling to steep	25	1	20/VI:180/VII	1	Federal
30	40	1	Lot 1, NW¼SW¼	80.06	Sharply rolling	21	1	VI	1	Private
		10	NE¼NE¼	40.00	Gently rolling	11	1	20/IV:20/VI	1-4	Private
		13	NW¼NE¼	40.00	Sharply rolling	9	1	VI	1	Private
		25	SE¼	160.00	Steep	29	1	VII	1	Federal
		33	S½SE¼	80.00	Rolling to steep	10	1	20/VI:60/VII	1	Private
30	41	6	SE¼SE¼	40.00	Sharply rolling	9	1	VI	1	Private
		7	SE¼NE¼	40.00	Sharply rolling	9	1	VI	1	Private
		8	SW¼NW¼	40.00	Sharply rolling	9	1	VI	1	Private
		17	S½, W½NE¼	400.00	Rolling to steep	74	1	240/VI:160/VII	1	Federal
		18	S½NW¼	80.00	Sharply rolling	18	1	VI	1	Private
		20	All	640.00	Rolling to steep	85	1	200/VI:440/VII	1	Federal
		21	Lots 1,2,W½SW¼	164.49	Rolling	33	1	VI	1	Federal
		28	SW¼SW¼	40.00	Rolling	6	1	VI	1	Federal
		29	All	640.00	Rolling to steep	70	1	80/VI:560/VII	1	Federal
		30	NE¼NE¼,S½N½, S½	520.00	Steep	94	1	VII	1	Federal
		31	SE¼, N½	480.00	Steep	70	1	VII	1	Federal
		32	All	640.00	Rolling to steep	105	1	130/VI:510/VII	1	Federal
		33	W½NW¼,NW¼SW¼,Lot 5	159.70	Rolling	22	1	VI	1	Federal
31	34	25	S½S½, NW¼SW¼	200.00	Gently to sharply rolling	38	1	160/VI:40/VII	1	Private
		26	SE¼SE¼	40.00	Gently to sharply rolling	5	1	30/VI:10/VII	1	Private
31	35	4	Lots 3, 4	80.00	Rolling	18	1-4	5/III:75/VI	1-4	Private
		30	N½SE¼,Lots 7, 8	161.84	Steep hills	16	1	VII	1	Private
		31	Lots 3,4,5,SE¼NW¼	159.32	Steep hills	19	1	VII	1	Private
		31	SW¼SE¼	40.00	Steep hills	6	1	VII	1	Private

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Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Valley County										
31	35	34	W½SE¼, E½SW¼	160.00	Rolling to steep	34	1	94/VI:66/VII	1	Private
31	36	3	SE¼NW¼	40.00	Rolling	7	1	25/IV:15/VI	1-4	Private
		4	Lots 1, 2	79.86	Rolling to steep and broken	16	1	14/VI:65.86/VII	1	Private
		9	SE¼NW¼, SW¼SW¼	80.00	Rolling to steep and broken	17	1	20/IV:60/VII	1-4	Private
31	37	1	SE¼NW¼, E½SW¼	120.00	Rolling to moderately steep	32	1	VI	1	Private
		5	Lot 1	39.60	Rolling to moderately steep	11	1	VI	1	Private
		23	W½SW¼	80.00	Gently rolling	26	1	IV	1-4	Private
		29	SE¼NW¼	40.00	Rolling to steep	11	1	VI	1	Private
31	39	12	S½SE¼	80.00	Moderately rolling	22	1	VI	1	State
		13	E½NE¼	80.00	Moderately rolling	20	1	VI	1	State
		24	SE¼NE¼	40.00	Moderately rolling	11	1	VI	1	State
		25	NE¼NW¼	40.00	Moderately rolling	11	1	VI	1	State
		35	Lots 3,4,NE¼,N½SE¼ 4/	317.37	Moderately rolling	53	1	VI	1	State
31	40	4	SW¼NW¼	40.00	Rolling	12	1	VI	1	State
		5	SE¼NE¼	40.00	Rolling	12	1	VI	1	State
		18	Lots 1, 2	65.52	Rolling	20	1-2	VI	1-2	State
		35	E½NE¼	80.00	Rolling	22	1	VI	1	State
32	35	3	NW¼SE¼	40.00	Rolling	10	1	10/IV:30/VI	1-4	Private
		4	Lot 4	41.50	Rolling	12	1	IV	1-4	Private
		28	Lot 5	19.47	Level to steep	3	1	9.47/VII:10/IV	1	Private
		29	Lots 2, 3	62.67	Level to steep	10	1	20/IV:42.67/VII	1	Private
		33	SE¼NW¼, E½SW¼	120.00	Rolling to steep	29	1	78/VI:42/VII	1	Private
32	36	2	Lot 4	41.62	Rolling	12	1	VI	1	Private
		4	NE¼SE¼	40.00	Steep and broken	7	1	VII	1	Private
		34	SE¼SW¼	40.00	Sharply rolling	7	1	VI	1	Private
32	37	19	SE¼NW¼	40.00	Rolling	11	1	VI	1	Federal
		21	NE¼SW¼, S½SW¼	120.00	Rolling	32	1	VI	1	Federal

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Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Valley County										
32	37	22	NW¼SE¼	40.00	Steep and broken	7	1	VII	1	Federal
		27	NW¼NW¼, S½N½	200.00	Rolling	52	1	VI	1	Federal
		29	SE¼SW¼	40.00	Rolling	11	1	VI	1	Federal
		34	E½NE¼,SW¼NW¼,SE¼SW¼	160.00	Rolling	42	1	VI	1	Federal
32	39	13	S½S½	160.00	Moderately rolling	33	1	VI	1	State
		14	SE¼NE¼, SE¼SE¼	80.00	Moderately rolling	18	1	VI	1	State
		24	W½NW¼, NE¼NE¼	120.00	Moderately rolling	31	1	VI	1	State
		25	S½SE¼	80.00	Moderately rolling	21	1	VI	1	State
32	40	5	Lots 3,4,5,6,11, 12	191.68	Level to rolling	42	1	VI	1	State
		6	Lots 1,2,7,8,9, 10	191.66	Level to rolling	42	1	VI	1	State
		28	N½NW¼	80.00	Level to rolling	18	1	VI	1	State
		30	S½SW¼	80.00	Moderately rolling	18	1	VI	1	State
		31	W½	320.00	Moderately rolling	107	1	VI	1	State
		32	NE¼NE¼	40.00	Moderately rolling	12	1	VI	1	State
		33	N½N½, SE¼NW¼	200.00	Moderately rolling	55	1	VI	1	State
33	35	6	Lots 4, 5	81.62	Moderately rolling	18	1	VI	1	Private
		14	NW¼SE¼, NW¼SW¼	80.00	Rolling to steep	22	1	40/VI:40/VII	1	Federal
		15	SW¼NW¼	40.00	Rolling hills	12	1	VI	1	Private
		21	SW¼SW¼	40.00	Rolling hills	12	1	VI	1	Private
		23	SE¼NE¼,NE¼SE¼,SW¼SE¼	120.00	Rolling to steep	33	1	35/VI:85/VII	1	Private
		24	NE¼SE¼, NW¼SW¼	80.00	Rolling to steep	23	1	30/VI:50/VII	1	Private
		25	SW¼SE¼	40.00	Level to rolling hills	4	1-4	8/III:32/VII	1-4	Private
		26	S½SE¼	80.00	Rolling to steep	23	1	40/VI:40/VII	1	Private
		28	SW¼NW¼, W½SW¼	120.00	Rolling to steep	36	1	VI	1	Private
		31	SE¼NE¼	40.00	Level to rolling	7	1	10/IV:30/VI	1-4	Private
		33	SW¼NE¼	40.00	Rolling to steep	12	1	VI	1	Private
		35	SE¼SW¼	40.00	Steep and broken	11	1	VII	1	Private

-Continued

Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Valley County										
33	39	1	NE¼, E½NW¼, NE¼SW¼, SE¼SE¼, N½SE¼	400.00	Rolling Hills	108	1	VI	1	State
		3	NE¼	160.00	Level to rolling hills	46	1	40/V:120/VI	1	State
		7	Lots 8, 9	76.71	Rolling hills	20	1	VI	1	Federal
		8	W½SW¼	80.00	Rolling hills	22	1	VI	1	Federal
		11	Lots 6, 7	5.90	Rolling hills	2	1	VI	1	State
		12	Lots 6,7,8,9, 10	22.18	Rolling hills to level	7	1	8.36/V:13.82/VI	1	State
		18	Lot 8	40.00	Rolling hills	9	1	VI	1	Federal
		32	Lots 2, 3	52.80	Gently sloping	16	1	VI	1	State
		34	Lots 1,2,3,4	104.64	Gently sloping	31	1	VI	1	State
		35	Lots 1,2,3,4	105.04	Gently sloping	32	1	VI	1	State
34	35	19	NE¼NE¼	40.00	Rolling	12	1	10/IV:30/VI	1-4	Private
		19	S½SE¼, SE¼SW¼	120.00	Rolling to steep and broken	18	1-2	36/VI:64/VII:20/VIII	1-4	Private
		20	SE¼NW¼	40.00	Rolling	11	1	27/IV:13/VI	1-4	Private
		25	NE¼NE¼, S½SW¼	120.00	Rolling	30	1	VI	1	Private
		29	NW¼NW¼, W½SW¼	120.00	Rolling to steep and broken	16	1-2	30/VI:55/VII:35/VIII	1-2	Private
		30	NE¼, E½NW¼, Lot 1	280.33	Rolling to steep and broken	31	1-2	7/VI:48/VIII:225.33/VII	1-2	Private
34	39	3	NW¼SW¼	40.00	Moderately rolling	11	1	VI	1	Federal
		10	NE¼NW¼	40.00	Moderately rolling	11	1	VI	1	Private
		11	E½SE¼	80.00	Moderately rolling	22	1	VI	1	Federal
		23	NE¼SW¼	40.00	Moderately rolling	11	1	VI	1	Federal
		24	NW¼SW¼	40.00	Moderately rolling	11	1	VI	1	Federal
		30	Lot 4	35.24	Moderately rolling	9	1	VI	1	Federal
34	41	1	Lot 2	40.03	Moderate to steeply rolling	13	1	VI	1	State
35	39	2	SE¼NE¼	40.00	Moderately rolling	9	1	VI	1	Private
		3	SE¼NW¼, NE¼SW¼	80.00	Moderately steep	16	1	VII	1	Private
		9	N½NW¼	80.00	Moderately steep	15	1	VI	1	Federal

-Continued

Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian Twp. North	Montana Principal Meridian Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Valley County										
35	40	20	NE¼NE¼	40.00	Flat and marshy	15	1	VI	1	State
		34	W½NE¼, SE¼SE¼	120.00	Rolling hills	36	1	VI	1	State
35	41	18	SE¼NE¼	40.00	Rolling hills	10	1	VI	1	State
		23	NE¼SW¼	40.00	Gently rolling	25	1	II	4	State
		25	E½NW¼, SW¼NW¼, SW¼SE¼	160.00	Rolling and hilly	57	1	VI	1	State
35	42	8	SE¼SE¼	40.00	Rolling and hilly	15	1	VI	1	Private
		28	SW¼NW¼	40.00	Rolling and hilly	12	1	VI	1	State
		29	SE¼NE¼	40.00	Rolling and hilly	12	1	VI	1	State
		33	NE¼SE¼	40.00	Flat to hilly	10	1	5/III:35/VI	1-4	State
35	43	6	N½SE¼	80.00	Hilly and broken	16	1	VI	1	State
		7	Lot 2	33.87	Hilly and broken	9	1	VI	1	State
		8	N½SE¼	80.00	Hilly and broken	16	1	VI	1	State
		20	S½NW¼	80.00	Hilly and broken	16	1	VI	1	State
		23	E½NW¼	80.00	Level to hilly	21	1-4	18/III:62/VI	1-4	State
		28	SW¼SW¼	40.00	Rolling to hilly	10	1	VI	1	State
		33	NW¼	160.00	Rolling to hilly	40	1	VI	1	State
36	39	2	Lot 3	57.03	Steep	12	1	VII	1	Federal
		3	Lot 4	56.55	Moderately rolling	13	1	VI	1	Federal
		10	SE¼SE¼	40.00	Moderately rolling to steep	9	1	20/VI:20/VII	1	Federal
		13	NW¼NE¼	40.00	Steep and broken	7	1	VII	1	Federal
		13	SE¼	160.00	Steep and broken	27	1	VII	1	Private
		24	NW¼NW¼	40.00	Steep and broken	7	1	VII	1	Federal
36	40	6	Lot 5	32.42	Hilly and broken	5	1	VI	1	Private
		7	Lots 2, 3, SE¼NW¼, E½SW¼	186.08	Hilly and high ridges	56	1	VI	1	State
		15	SW¼NW¼	40.00	Level to hilly	13	1	10/III:30/VI	1-4	State
36	41	2	W½SE¼	80.00	Hilly	16	1	VI	1	State
36	42	3	SW¼SW¼	40.00	Rolling hills	15	1	VI	1	State

-Continued

Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Montana Principal Meridian										
Twp. North	Range East	Sec.	Subdivision	Acres	General Land Character	AUM's	Present Land Use 2/	Land Capability Classification 3/	Principal Suitability 2/	Proposed Management
Valley County										
36	42	6	SE¼SW¼	40.00	Level to rolling	10	1	5/III:35/VI	1-4	State
		25	S½SW¼	80.00	Hilly	20	1	VI	1	State
37	39	15	NW¼NE¼, E½NW¼	120.00	Rolling to steep	23	1	VII	1	Federal
		22	NW¼NE¼, SW¼SE¼	80.00	Rolling to steep	20	1	VII	1	Federal
		23	NW¼NE¼,SE¼NW¼,NE¼SW¼	120.00	Rolling to steep	27	1	VII	1	Federal
		27	W½SE¼, E½SW¼	160.00	Rolling to steep	40	1	VII	1	Federal
		34	NW¼	160.00	Rolling to steep	40	1	VII	1	Federal
		35	E½SE¼	80.00	Rolling to steep	17	1	VII	1	Private
37	40	31	NW¼NE¼	40.00	Hilly	13	1	VI	1	State
37	41	3	Lot 8	43.81	Hilly	11	1	VI	1	State
		18	NW¼SE¼	40.00	Rolling	12	1	VI	1	State
37	42	1	SE¼SW¼	40.00	Hilly	10	1	VI	1	State
		3	Lots 14, 16	40.64	Level to rolling	8	1-4	8/III:32.64/VI	1-4	State
		4	Lots 13, 14, 15	61.33	Hilly	15	1	VI	1	State
		6	Lot 32	27.63	Hilly	5	1	VI	1	State
		11	W½NW¼	80.00	Level to hilly	16	1-4	16/III:64/VI	1-4	State
		12	NE¼NW¼	40.00	Hilly	10	1	VI	1	State
		25	E½SE¼,N½SW¼,SE¼NW¼	200.00	Level to hilly	32	1-4	64/III:136/VI	1-4	State
		26	NW¼NE¼	40.00	Level to hilly	12	1-4	15/III:25/VI	1-4	State
		27	NW¼SE¼	40.00	Hilly and broken	10	1	VI	1	State

1/ Compiled from Land Classification Reports made by the Missouri River Basin field crew for the Milk River Area, Bureau of Land Management, 1952-54. Landownership status accurate to July 1, 1954.

2/ Symbols denote land use and suitability: 1. Grazing; 2. Wildlife habitat; 3. Watershed; 4. Crop production; 5. Business site; Public camp ground; 7. Water storage.

3/ See Appendix "C" for detailed description of Land Use Capability Classification.

4/ Stock driveway withdrawal.

Table 27.--Description, area, classification, suitability and proposed management of vacant public domain lands, by counties, within the Isolated Tract Classification areas of the Milk River Area, Montana, 1954 1/ - Continued

Summary

Montana Counties	Number of Tracts	Total Area Acres	Land Capability Classes in Acres						Recommended Stocking	Recommended Management					
										Federal		State		Private	
			II & III	IV	V	VI	VII	VIII	Animal Unit Mos.	Number of Tracts	Acres	Number of Tracts	Acres	Number of Tracts	Acres
Blaine	454	51,636.56	135	3,433	215	22,358	24,292	1,205	9,969	9	1,113	46	7,237	399	43,286.86
Chouteau	66	5,869.78	-	40	-	640	4,892	298	973	6	555	8	1,120	52	4,195.28
Phillips	168	17,463.13	60	2,558	175	9,252	5,274	144	4,036	25	4,263	1	80	142	13,119.94
Valley	231	22,672.39	281	545	308	11,845	9,413	279	4,621	55	8,472	61	5,450	115	8,750.20
TOTAL	919	97,641.36	476	6,576	698	44,095	43,871	1,926	19,604	95	14,402	116	13,887	708	69,352.28

Appendix A

Principal plants growing on rangelands and timberlands of the Milk River Area, Montana. Symbols listed are those of the three principal species of plants in formula areas as shown on the maps with this report.

Map Symbol	Scientific Name	Common Name
Acr	Agropyron cristatum	Crested wheatgrass
	Agropyron dasystachyum	Thickspike wheatgrass
Ain	Agropyron inerme	Beardless bluebunch wheatgrass
Asm	Agropyron smithi	Bluestem wheatgrass
Asp	Agropyron spicatum	Bearded bluebunch wheatgrass
	Agrostis alba	Redtop
Asc	Andropogon scoparius	Little bluestem
	Aristida longiseta	Red threeawn
	Beckmannia syzigachne	American sloughgrass
	Bouteloua curtipendula	Sideoats grama
Bgr	Bouteloua gracilis	Blue grama
	Bromus inermis	Smooth brome
	Bromus tectorum	Cheatgrass brome
Cca	Calamagrostis canadensis	Bluejoint reedgrass
Cmo	Calamagrostis montanensis	Plains reedgrass
Clo	Calamovilfa longifolia	Prairie sandreed
Dst	Distichlis stricta	Inland saltgrass
	Echinochloa crusgalli	Barnyardgrass
	Elymus canadensis	Canada wildrye
	Festuca octoflora	Sixweeks fescue
Hju	Hordeum jubatum	Foxtail barley
Kcr	Koeleria cristata	Prairie junegrass
Mcu	Muhlenbergia cuspidata	Stonyhills muhly
MUH	Muhlenbergia spp.	Muhly
Ohy	Oryzopsis hymenoides	Indian ricegrass
	Phleum pratense	Timothy
Ppr	Poa pratensis	Kentucky bluegrass
Pse	Poa secunda	Sandberg bluegrass
Spa	Schedonnardus paniculatus	Tumblegrass
Shy	Sitanion hystrix	Bottlebrush squirreltail
Spe	Spartina pectinata	Prairie cordgrass
Sai	Sporobolus airoides	Alkali sacaton
Scr	Sporobolus cryptandrus	Sand dropseed
Sco	Stipa comata	Needleandthread
Svi	Stipa viridula	Green needlegrass

Sedge and other grass-like plants

Map Symbol	Scientific Name	Common Name
Cfi	Carex filifolia	Threadleaf sedge
Cge	Carex gereri	Elk sedge
CAR	Carex spp.	Various unidentified sedges

Map Symbol	Scientific Name	Common Name
	Juncus balticus	Baltic rush
	Scirpus americanus	American bulrush
	Typhalatifolia	Common cattail
	Forbs	
	Achillea lanulosa	Western yarrow
	Allium spp.	Onion
	Anemone ludovicinia	American pasqueflower
	Antennaria spp.	Pussytoes
	Aplopappus acaulis	Stemless goldenweed
	Aster spp.	Aster
	Calochortus nuttalli	Segolily mariposa
CHE	Chenopodium spp.	Goosefoot
	Cirsium spp.	Thistle
	Cruciferae spp.	Mustard
	Dodecatheon spp.	Shootingstar
	Equisetum spp.	Horsetail
ERI	Erigeron spp.	Fleabane
	Eriogonum spp.	Eriogonum, wild buckwheat
	Euphorbia marginata	Snow-on-the-mountain euphorbi
Fbs		Various unidentified forbs
	Glycyrrhiza lepidota	American licorice
	Grindelia squarrosa	Curlycup gumweed
	Helianthus annuus	Common sunflower
	Iris spp.	Iris
	Kochia smericana	Greenmolly summercypress
	Lappula spp.	Stickseed
	Lomatium spp.	Biscuitroot
	Lupinus spp.	Lupine
	Melilotus alba	White sweetclover
	Melilotus officinalis	Yellow sweetclover
	Oenothera spp.	Eveningprimrose
	Penstemon spp.	Penstemon
PHL	Phlox spp.	Phlox
	Plantago spp.	Plantain
	Psoralea esculenta	Breadroot scurfpea
	Ranunculus spp.	Buttercup
RUM	Rumex spp.	Dock
	Senico spp.	Groundsel
	Solidago spp.	Goldenrod
	Thermopsis spp.	Thermopsis; goldenpea
	Vica spp.	Vetch
Wds		Various unidentified weeds
	Xanthium spp.	Cocklebur

Map Symbol	Scientific Name	Common Name
	Shrubs	
	Amelanchier alnifolia	Saskatoon serviceberry
Auv	Arcotostaphylos uva-ursi	Bearberry: kinnikinnick
Aca	Artemisia cana	Silver sagebrush
Afr	Artemisia frigida	Fringed sagebrush
Atr	Artemisia tridentata	Big sagebrush
Acx	Atriplex canescens	Fourwing saltbush
Aco	Atriplex confertifolia	Shadscale saltbush
Anu	Atriplex gardneri (nuttalli)	Gardner saltbush
	Coryphantha	Golfball cactus
CHY	Chrysothamnus spp.	Rabbitbrush
	Aurotia lanata	Common winterfat
Gsa	Gutierrezia sarothrae	Broom snakeweed
	Mahonia aquifolium	Oregongrape
OPU	Opuntia spp.	Pricklypear
Opo	Opuntia polycantha	Plains pricklypear
	Potentilla fruticosa	Bush cinquefoil
	Prunus spp.	Chokecherry
Ptr	Purshia tridentata	Antelope Bitterbrush
	Rhus trilobata	Skunkbush sumac
	Ribes spp.	Gooseberry: currant
ROS	Rosa spp.	Rose
SLX	Salix spp.	Willow
Sve	Sarcobatus vermiculatus	Black greasewood
	Shepherdia canadensis	Buffaloberry
SYM	Symphoricarpos albus	Common snowberry
	Tetradymia nuttalli	Nuttall horsebrush
	Yucca glauca	Small soapweed
	Trees	
	Acer negundo	Boxelder
	Alnus tenuifolia	Thinleaf alder
	Fraxinus lanceolata	Green ash
JUP	Juniperus spp.	Juniper
	Juniperus horizontalis	Creeping juniper
	Juniperus scopulorum	Rockymountain juniper
	Pinus contorta latifolia	Lodgepole Pine
Ppo	Pinus ponderosa	Ponderosa pine
	Populus deltoides	River cottonwood
	Populus tremuloides	Quaking aspen
POP	Populus spp.	Cottonwood
	Pseudotsuga taxifolia	Common douglasfir
	Poisonous Plants	
	Asclepias spp.	Milkweed
	Astragalus spp.	Loco: poisonvetch

Map Symbol	Scientific Name	Common Name
	Delphinium spp.	Larkspur
Hho	Helenium hoopesi	Orange sneezewood
	Zygadenus venenosus	Meadow deathcamus

Common Weeds of Cultivated Lands

	Agropyron repens	Quackgrass
	Amaranthus retroflexus	Redroot amaranth
	Asclepias speciosa	Showy milkweed
	Avene fatua	Wild oat
	Bromus tectorum	Cheatgrass brome
	Capsella bursa-pastoris	Shephardspurse
	Centaurea repens	Russian knapweed
	Cerastium vulgatum	Big cerastium: chickweed
	Cirsium arvense	Canada thistle
	Convolvulus arvensis	European glorybind, wild morning-glory or bindweed
	Digitaria sanguinalis	Crabgrass
	Euphorbia esula	Leafy spurge
	Franseria discolor	Skeletonleaf bursage
	Glycyrrhiza lepedota	Wild licorice
	Hemenophysa pubescens	White top
	Iva axillaris	Poverty sumpweed
	Latuca pulchella	Blue lettuce
	Lepedium draba	White top
	Lepedium repens	White top
	Linaria vulgaris	Yellow toadflax
	Polygomum convolovlus	Dullseed cornbind wild buckwheat
	Salsola kali tenuifolia	Tumbling russianthistle
	Setaria viridis	Green bristlegrass:pigeon grass
	Sisymbrium altissimum	Tumblemustard
	Sonchus arvensis	Field sowthistle
	Taraxicum officinale	Common dandelion
	Thalspi arvense	Field pennycress: fanweed
	Trapagon pratensis	Meadow salsify
	Trifolium spp.	Clover

Nomenclature from "Standard Plant Names", H. P. Kelsey and W. A. Dayton: published by Horace McFarland Company, Harrisburg, Pennsylvania, 1942.

orm No. 4-1090
(April 1951)

APPENDIX B

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

................................, 19........
(Date of field examination)

LAND CLASSIFICATION REPORT

I. SUMMARY

1. Region .... State .... County .... Serial ....
2. Type of application .... Applicant ....
3. Land description: T. .... R. .... Mer. .... Acres ....
....
....
....
4. Location and accessibility ....
....
5. Elevation .... 6. Annual precipitation ....
7. Topography ....
8. Soil ....
9. Vegetation ....
10. Type and extent of erosion ....
11. Present land uses ....
....
12. Potential land uses ....
....
13. Present improvements ....
14. Needed improvements ....
15. (*a*) Value of land, $................ (*b*) Value of ...., $................
(*c*) Value of ...., $................ Total value, $................
16. Conflicts ....
....
....
17. Does the land contain: (*a*) Mineral .... (*b*) Hot springs .... (*c*) Water needed by public? ....
(*d*) Is it occupied by natives (Alaska)? ....
18. Findings and recommendations:

Prepared by ....
(Title) (Date)

Approved ....
(Title) (Date)

Approved ....
(Title) (Date)

19. Classification

Signed ....
(Title) (Date)

RIVATE—Not for Public Information

16—60299-2

II. LAND USE FACTORS

A. Crop Factors:

20. Soil

21. Precipitation

22. Growing season

23. Area adaptable for crop production: Total acres
(*a*) By irrigation (*b*) By dry-farming
24. Principal crops and average yields on similar lands in locality

25. Crop failures in locality
(*a*) Frequency (*b*) Causes

26. Extent of farm land abandonment in locality

27. Water supply:
(*a*) Source (*b*) Quality
(*c*) Adequacy (*d*) Dependability
28. Feasibility of irrigation development (construction of facilities, water rights, costs, and returns):

29. Minimum acreage required for average farm family unit
30. Agricultural rating: (*a*) Good (*b*) Fair (*c*) Poor
31. Comments:

B. Grazing Factors:

32. Vegetation (type association)

33. (*a*) Density (*b*) Condition

34. Principal forage plants
35. Nonforage plants
36. Present grazing capacity (AUMs); Potential grazing capacity (AUMs)
37. Stock water available: Stream Spring Well Pond Other
38. Is this water needed by public? If so, explain

39. Treatment, structures, or other changes or improvements necessary for best use and management

40. Name and address of lessee
41. Comments:

C. TIMBER:

42. Acres timbered:

43.

SPECIES	UNIT	VOLUME	UNIT VALUE	VALUE

44. Total value of timber
45. Quality and condition
46. Accessibility
47. Demand
48. Comments:

D. MINERALS:

49. (*a*) Metallic
(*b*) Nonmetallic
50. Extent of development, leases and claims

51. Comments:

E. OTHER LAND USE:

52. Does the land have value or adaptability for airfield, wildlife conservation, hunting, community, industrial, homesite, business, recreation, or other?

53. Type and ownership of improvements on this and adjacent lands

54. Comments:

II. APPRAISAL (55–60).—List evidence of value considered (sales, tax assessments, opinions, rentals, etc.) and state conclusions. Improvements should be appraised separately.

IV. DIAGRAM T. R. M.

Scale: Symbols:

Names and addresses of adjoining owners:

Comments: (This diagram may also be used for a wide variety of larger or smaller scales than the one inch equals one mile as implied. The examiner making the inventory and appraisal selects a scale adapted to the tract or tracts being examined. Data exterior to the tract which is usually shown consists of access, drainage, water supply, adjacent ownership, use and lease or operating unit information. Pertinent adjacent features affecting the use, location or value of the tract are also shown on this diagram.)

(DO NOT WRITE BELOW THIS LINE)

Class	Suitable for	Topography		Characteristic Native Vegetation	Soil Characteristics						Vulnerability to Erosion	Requisite Special Practices
		Slope (percent)	Character of Surface		Texture	Depth	Relative Salinity	Fertility	Productivity	Drainage		
I	Best type of farming land	0 to 2	Level or nearly level	Tall and mid-grasses, thrifty sagebrush, deciduous trees	Medium; Friable	12" or more; subsoil 36" or more	Negligible	High	Good to High	Good to Excellent	Low	None to minor
II	Farming with simple conservation practices	0 to 10	Irregular	Tall, mid, and short grasses; big sagebrush, deciduous trees	Light to Heavy; Friable	8" or more; subsoil 36" or more	Negligible to slight	Good to High	Moderate to High	Good	Slight to moderate	Minor to simple practices
III	Farming with complex conservation practices	0 to 10	Irregular	Tall, mid, and short grasses; big sagebrush, rabbitbrush, greasewood, coniferous, and deciduous trees	Light to Heavy; Friable	6" or more; subsoil 24" or more	Slight to moderate	Fair to Good	Moderate to High with management	Often poor; may be needed	Moderate to High	Complex practices essential
IV	Limited or occasional cultivation; best for permanent hay or pasture	0 to 15	Irregular or stony	Tall, mid, and short grasses; big sagebrush, rabbitbrush, greasewood, coniferous, deciduous trees, saltbush, winterfat	Sandy to Clay; porous or tight	6" or more; may have shallow hardpan	Negligible to critical	Poor to Good	Poor for row crops; best for hay and pasture	Not justifiable if needed	Moderate to High or nil	Complex and intensive practices with good management
V	Range or woodland; farming only if irrigation water becomes available	0 to 5	Smooth to irregular; may be stony or wet	Tall, mid, and short grasses; big sagebrush, rabbitbrush, greasewood, coniferous, and deciduous trees	Light to Heavy; Friable	Good permeability to 24" depth	Negligible to moderate	Good to High	Moderate to High	Usually not a problem	Low	None to minor or drainage
VI	Range and woodland only	0 to 20 (greater only on good soils)	Irregular to rough or rocky	Tall, mid, and short grasses; big sagebrush, rabbitbrush, greasewood, coniferous, deciduous trees, saltbush, winterfat	Very Light to Heavy	Shallow to moderate; permeability excessive to poor	Negligible to moderate	Fair to Good	Light to Moderate;	Not practicable if a problem	Moderate	Proper management with simple restrictions
VII	Range and woodland with severe restrictions	0 to 100	Rough, rocky, or eroded	Tall, mid, and short grasses; big sagebrush, rabbitbrush, greasewood, coniferous, deciduous trees, saltbush, winterfat, mountain browse and annuals	Any: May be tight clay or open sand or gravel	Often shallow, poorly developed	Negligible to critical	May be Poor	Poor to Light	Seldom a problem or not practicable	High	Proper management with complex restrictions and intensive practices
VIII	Watershed, wildlife and recreation	Generally steep or swampy	Extremely rough, barren or inaccessible	Often only annuals or scanty perennials; may be dense coniferous timber	Usually poorly developed	Very shallow or nil	May be excessive for plant growth	Usually very low	Usually very low or nil	Often poor; not justifiable if a problem	High (unless a swamp)	Complete protection

1/ Adapted from Soil Conservation Service Standards, U. S. Department of Agriculture. Any one of the factors listed may classify a soil, factors determining classification singly, not necessarily in combination.

Appendix D

Range Type Designations

As shown on the five maps of the Milk River
Area, Montana, 1959, with this report

Type No.	Type Characteristics	Remarks
-Grass	Buffalo-grama, bluestem wheatgrass, Junegrass, needlegrasses, prairie sandreed, bunch grasses, alpine grassland, sedges.	Grassland.
-Meadow	Meadow grasses and sedges; bluestem wheatgrass; high density; high production. Land usually level or nearly so, with extra moisture from overflow, runoff, or seepage, or in a high precipitation area.	Wet or dry meadows.
-Sagebrush	Big sagebrush, silver sagebrush, other sagebrush by apprerance or aspect.	Big sagebrush, Silver sagebrush, Sand sagebrush.
-Mountain Shrub	Browse and shrubs(except sagebrush)usually makes up most of the vegetal cover; at least dominates the aspect of the type.	Mountain mahogany, ceanothus, willow.
-Conifer	Woodland type in the Missouri River Basin at lower elevations is usually Ponderosa Pine; at least in aspect. At high elevations, may be lodgepole pine, Engleman spruce, Douglas fir; may also contain browse, shrubs, grasses and weeds. Big sagebrush, Green needlegrass, Ponderosa pine.	Pine, fir, or spruce cover or aspect.
-Waste (7 W)	No grazing or slight value for grazing; not barren. May not be accessible.	Large areas of very sparse forage.

- Continued

Apprendix D
Range Type Designations - Continued

Type No.	Type Characteristics	Remarks
7-Timber (7 T)	Cover not palatable, or prevents use. May not be accessible.	Timber and/or brush with no plants useful for grazing.
8-Barren	Lake beds, shore areas, sand dunes, saline flats, lava flows, rock peaks and slopes.	To be differentiated from wasteland
9-Juniper	RockyMountain Juniper; outside of the Missouri Basin, this type is called Pinon-Juniper and includes Pinon and Digger pine, Utah and other Juniper.	May have stand of grass and shrubs, or may be almost pure Juniper.
10-Broad-leaf Deciduous trees	Cottonwood, aspen, alder, birch oak, ash, elm, at least in aspect. May be with brush or open with grass.	Stream margins drainage ways, mountain sites.
13-Saltbush: Antriplex	Antriplex dominant, separate from Desert Shrub; Gardner saltbush.	Antriplex is sufficiently dominant to show type.
14-Greasewood	Sarcobatus is dominant, at least in aspect; stream margins, saline flats.	Overflow areas with saline soils.
17-Half Shrub	Applopappus, Artemisia frigida, Eriogonum, Gutierrezia.	Usually small types with unusual conditions Rare.
18-Annual Weeds	Tumbling Russianthistle, mustard, cheatgrass brome, sixweeks fescue, tumblegrass, annual atriplex.	Local annual weeds, usually on disturbed areas. On abandoned cropland.

APPENDIX E

TECHNICIANS' GUIDE TO RANGE SITES, CONDITION CLASSES, AND RECOMMENDED STOCKING RATES

Utilized by the Missouri River Basin Investigation Field Group of the Bureau of Land Management for the inventory studies of the Milk River Area, 1952-54. Compiled from the Technicians' Guide for the Glaciated Plains of Montana, produced by the Soil Conservation Service, U. S. D. A.

P 1: Key species and their response to grazing as judged from climax:

DECREASERS	INCREASERS (By range sites*)	Maximum % in climax - 10"-14" precipitation																		INVADERS
		WL	Sb	Ld	SL	Sv	Sa	Sy	OU	Cl	DC	Sw	Sc	TB	Gr	VS	SU	Sh	Bl	
G ht wildrye	Western wheatgrass	-	25	40	d	20	15	25	35	50	d	40	d	d	d	d	d	d	d	All annuals
C lgrasses	Needleandthread	-	-	5	-	10	30	40	35	d	d	d	d	d	d	d	d	d	d	All exotics
B bluestem	Prarie junegrass	-	-	5	d	5	5	5	5	10	15	10	15	15	15	d	d	d	d	Canada bluegrass
C ada wildrye	Plains reedgrass	-	-	5	d	5	5	5	10	15	15	15	d	20	-	d	d	d	d	Kentucky bluegrass
R gh fescue	Blue grama	-	-	-	-	5	5	5	10	10	15	15	10	10	20	30	30	d	30	Curlycup gumweed
P rie sandreed	Sandberg bluegrass	-	-	-	-	5	-	5	5	5	5	5	5	5	10	10	15	10	10	Broom snakeweed
B ebunch wheatgrass	Squirreltail	-	-	-	5	-	-	-	-	-	5	5	5	-	5	5	10	5	5	Tumblegrass
S nder wheatgrass	Red Threeawn	-	-	-	-	-	-	-	-	-	-	-	-	5	5	10	-	5	-	Dandelion
B rded wheatgrass	Stonyhills muhly	-	-	-	-	-	-	5	5	5	-	5	-	10	10	15	-	5	-	Foxtail barley
Gr n needlegrass	Mat muhly	-	5	5	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Rabbitbrush
Sl tawn	Saltgrass	-	-	-	15	-	-	-	-	-	5	-	10	-	-	-	20	5	5	Western ragweed
orcupinegrass	Threadleaf sedge	-	-	-	-	-	5	5	5	5	-	5	5	10	10	15	-	10	10	Bull thistle
T l reedgrasses	Dryland sedge	-	-	5	-	5	-	-	-	-	5	5	5	5	5	5	5	5	5	
I an ricegrass	Phlox	-	-	-	-	-	-	-	-	-	5	-	5	5	5	5	-	5	5	
S l dropseed	Pricklypear	-	-	-	-	-	-	-	-	-	5	5	5	5	5	5	5	-	-	
L le bluestem	Fringed sagewort	-	-	-	-	-	-	5	5	-	-	5	-	5	5	5	-	-	-	
S oats grama	Winterfat	-	-	-	-	-	-	5	5	5	5	5	d	d	d	d	d	d	d	
C y bluegrass	Gardners saltbush	-	-	-	d	-	-	5	5	5	10	5	d	-	-	5	40	40	d	
A li sacaton	Big sagebrush	-	-	5	-	5	-	5	5	5	-	-	-	5	5	-	5	-	5	
N all alkaligrass	Silver sagebrush	-	-	5	-	-	-	5	5	-	-	-	5	-	-	-	-	-	-	
F decreasers	Snowberry	-	-	5	-	-	5	5	-	-	-	-	-	-	-	-	-	-	-	
W land sedges	Greasewood	-	-	-	10	-	-	-	-	-	5	-	10	-	-	-	15	10	5	
F ails	Conifers	-	-	-	-	10	-	-	-	-	-	-	-	5	-	5	-	-	-	
	Other woody plants	5	5	5	5	5	5	5	5	5	5	5	5	10	5	5	5	5	5	

* e symbol "-" means the species has less than 2½% coverage or is not present in the climax vegetation on this site. The symbol "d" m s the species is a decreaser on this site. Range soil groups are described with determinant features (See Standard Symbols for Con- e ation Surveys, SCS, 1951). WL - Wetland is W3 (Subirrigated land with water over the surface during part of the growing season); Sb - S rrigated is W1-W2 (Subirrigated land with water rarely over the surface during the growing season); Ld - Lowland is f2-f3 overflowed (the Overflow guide to determine condition and stocking of native pasture areas with waterspreading systems. Map separately and l l separately as "Water Spreading System"); SL - Saline Lowland is S3-S4 with w; Sv - Savannah is land on which grass cover with iso- l d trees is climax. In this pcpt. belt usually 1-3 depth; r, v, c, or e; various textures; 4-7 surface permeability and 1-4 lower; S - Sands is L to C texture, 1-3 depth; Sy - Sandy is S texture, 1-3 depth; OU - Ordinary Upland is M texture, 1-3 depth; Cl - Clay is F H textures, 1-3 depth, normal permeability; DC - Dense Clay is V texture and lighter textures with 1 subsoil permeability; SW - Sh low is 4 depth; Sc - Scabland is a complex of 20-50% Solonetz soil (slick spots with very thin surface, F to H texture, 1 permeabil- it and 50-80% other soils; TB - Thin Breaks is various depths and textures on slopes over 20% with al surface; Gr - Gravel is less th 25% fines, 6 to 7 permeability; VS - Very Shallow is 5 depth, except shale site; SU - Saline Upland is S3 to S4; Sh - Shale is 5 de h, V or H Textures over K; Bl - Badlands is rough broken upland with intermingled small grazable areas; clay, shales and sandstones; ur veloped soils.

P II: Recommended stocking rates are based on precipitation belt, site and range condition in percent. For Savannah, Sands, Sandy, Ordinary Upland and Clay sites use the values in line with the precipitation belt of the site. For Wet Lands triple these values. For Subirrigated site double these values. For Lowland and Saline Lowland use values one-half to one belt higher. For Dense Clay, Shallow and Scabland use values one-half to one belt down. For Thin Breaks and Gravel use values of the next lower belt. For Very Shallow, Saline Upland, Shale and Badlands use values one and one-half belts down.

Precipitation Belt	Range condition percentages			
	100	75	50	25
(Inches)	(Animal unit months per acre)			
25 - 29	1.0	.57	.5	.25
20 - 24	.8	.6	.4	.2
15 - 19	.6	.45	.3	.15
10 - 14	.4	.3	.2	.1
5 - 9	.2	.15	.1	.05

APPENDIX F

Table 28.--Comparison of agricultural and social features of the Milk River Area, Montana, with the United States averages, 1950

	Value Expressed as:	Average United States	Average Milk River area	Deviation of Milk River Area from United States percent
Agriculture:				
Farms operated by tenants	percent	26.8	11.2	-58.2
Farm operator family level of living index	figure	122.0	106.0	-13.1
Sales per farm	dollars	4097.0	7053.0	+72.2
Population and education:				
Non-whites 1/	percent	10.5	9.7	-7.6
Age, median	years	30.2	27.8	-7.9
Persons 25 yrs. and older, school years completed	median	9.3	9.0	-3.2
Persons enrolled in school:				
7-13 yrs. old	percent	95.7	94.5	-1.3
14-17 yrs. old	percent	83.7	83.3	-0.5
Grade completion, persons 25 yrs. and older:				
Less than 5 grades	percent	11.1	8.4	-24.3
High school or higher	percent	34.3	34.3	0.0
Labor force:				
Employed in:				
Agriculture	percent	12.2	47.7	+291.0
Manufacturing	percent	25.9	1.9	-92.7
Employed: Males, 14 yrs. & older	percent	78.7	80.8	+2.7
Females, 14 yrs. & older	percent	28.9	21.7	-24.9
Housing:				
Median value of owner-occupied non-farm dwelling	dollars	7344.0	4813.0	-34.5
Median monthly rental, non-farm	dollars	42.5	37.9	-10.8
Median number persons per occupied dwelling unit	number	3.1	3.0	-3.2
Median number rooms per dwelling unit	number	4.6	3.8	-17.4
Structures built 1940 or later	percent	20.7	11.9	-42.5
Good dwellings with hot water and private bath	percent	63.1	37.4	-40.7
Occupied dwellings with central heating	percent	50.4	28.9	-42.7
Monthly electric bill farm facilities with electricity, average	dollars	7.4	11.0	+48.8
Median family income	dollars	2619.0	2919.0	+11.5

1/ Non-white population is virtually all Indians on Fort Belknap and Fort Peck Reservations.

Compiled from County and City Data Book, 1952, Bureau of the Census, Washington, D. C.

Table 29.—Combined Crop Statistics for Blaine, Phillips, and Valley Counties, Milk River Area, Montana, 1952-1957

			Relative Importance		Yield					Irrigated		Non-irrigated	
Crop-Year	Area Planted Acres	Area Harvested Acres	Harvested Area Percent	Value Percent	Per Planted Acre	Per Harvested Acre	Unit of Yield	Production Units	Crop Value Dollars	Area Harvested Acres	Yield per Harvested Acre Units	Area Harvested Acres	Yield per Harvested Acre Units
Wheat '52	581,900	554,100	65.10	64.29	13.9	14.6	bu.	8,063,300	16,218,300	15,100	28.5	539,000	14.2
Wheat '53	639,900	624,500	67.16	78.01	19.0	19.5	bu.	12,189,600	24,528,000	16,800	23.5	607,700	19.4
Wheat '54	465,000	453,700	53.80	62.30	14.5	14.9	bu.	6,753,500	14,556,400	12,300	22.3	441,400	14.7
Wheat '55	495,700	486,200	56.54	68.24	20.3	20.7	bu.	10,082,300	19,861,600	8,700	27.7	7,500	20.6
Wheat '56	579,500	539,400	68.14	70.63	14.4	15.5	bu.	8,369,600	16,414,900	14,100	26.6	525,300	15.2
Wheat '57	488,700	467,100	58.01	63.00	14.1	14.7	bu.	6,875,800	13,085,700	10,500	23.1	456,600	14.5
Barley '52	33,100	28,800	3.38	3.55	23.2	26.7	bu.	767,800	895,500	5,800	39.4	23,000	23.4
Barley '53	31,400	28,100	3.02	2.28	22.9	25.6	bu.	719,300	716,300	5,900	30.0	22,200	24.4
Barley '54	125,700	118,100	14.02	9.42	18.9	20.2	bu.	2,382,000	2,202,000	8,300	39.4	109,800	19.5
Barley '55	113,900	110,500	12.85	7.72	26.9	27.8	bu.	3,066,900	2,247,400	4,800	34.0	105,700	27.5
Barley '56	56,000	51,700	6.53	4.08	20.2	21.9	bu.	1,133,700	947,300	4,800	32.2	46,900	20.9
Barley '57	139,500	129,700	16.11	8.97	19.3	20.8	bu.	2,699,100	1,862,400	5,500	31.3	124,200	20.1
Oats '52	93,500	40,200	4.72	4.40	15.1	35.0	bu.	1,408,200	1,109,000	10,400	50.1	29,800	29.8
Oats '53	66,200	34,900	3.75	2.33	17.5	33.2	bu.	1,158,700	747,900	9,300	43.1	25,600	29.6
Oats '54	62,600	27,000	3.21	1.93	12.2	28.2	bu.	761,400	450,000	1,300	37.3	25,700	27.7
Oats '55	43,900	21,700	2.52	1.15	15.6	31.6	bu.	685,800	335,100	1,100	35.1	20,600	31.4
Oats '56	42,000	14,300	1.81	.94	10.2	30.0	bu.	429,200	218,900	4,800	42.9	9,500	23.5
Oats '57	46,900	19,800	2.46	1.20	11.1	26.2	bu.	518,500	249,400	4,400	36.0	15,400	23.4
Corn '52	3,800	3,700	.43	.34	12.7	13.0	bu.	48,200	84,600	300	33.3	3,400	11.2
Corn '53	4,600	4,600	.49	.43	17.5	17.5	bu.	80,400	134,300	100	30.0	4,500	17.2
Corn '54	4,100	4,100	.49	.59	19.6	19.6	bu.	80,300	139,000	1,300	37.3	2,800	11.3
Corn '55	6,200	6,100	.71	.77	19.7	20.0	bu.	122,000	208,500	1,100	35.1	5,000	16.7
Corn '56	6,300	6,100	.77	.72	18.4	19.0	bu.	116,200	168,100	800	46.9	5,300	14.8
Corn '57	8,000	7,700	.96	.90	18.4	19.1	bu.	147,000	191,300	900	44.7	6,800	15.7
Rye '52	3,100	800	.09	.04	2.4	9.4	bu.	7,500	11,100	-	-	800	9.4
Rye '53	4,200	1,300	.15	.06	4.6	14.8	bu.	19,200	18,600	-	-	1,300	14.7
Rye '54	3,500	2,000	.24	.10	6.2	10.8	bu.	21,600	22,400	-	-	2,000	10.8
Rye '55	5,300	1,700	.20	.09	3.7	11.5	bu.	19,500	26,500	-	-	1,700	11.5
Rye '56	3,500	700	.09	.03	2.0	10.1	bu.	7,100	6,600	-	-	700	10.1
Rye '57	4,300	700	.09	.03	1.5	9.1	bu.	6,400	5,400	-	-	700	9.1

- Continued

Table 29.—Combined Crop Statistics for Blaine, Phillips, and Valley Counties, Milk River Area, Montana, 1952-1957 - Continued

Crop-Year	Area Planted Acres	Area Harvested Acres	Relative Importance Harvested Area Percent	Relative Importance Harvested Value Percent	Yield Per Planted Acre	Yield Per Harvested Acre	Yield Unit of Yield	Production Units	Crop Value Dollars	Irrigated Area Harvested Acres	Irrigated Yield per Harvested Acre Units	Non-irrigated Area Harvested Acres	Non-irrigated Yield per Harvested Acre Units
All hay '52	-	212,400	24.95	24.45	-	1.0	tons	212,310	6,167,400	74,500	1.44	137,900	.76
All hay '53	-	225,200	24.22	14.96	-	1.2	tons	268,070	4,701,600	84,600	1.67	140,600	.90
All hay '54	-	217,400	25.30	21.14	-	1.2	tons	260,500	4,939,800	79,200	1.81	138,200	.85
All hay '55	-	214,300	24.92	18.55	-	1.3	tons	269,700	5,396,500	64,700	2.06	149,600	.92
All hay '56	-	160,400	20.27	18.96	-	1.1	tons	181,400	4,405,100	67,400	1.71	93,000	.71
All hay '57	-	164,400	20.41	20.63	-	1.3	tons	220,100	4,284,300	79,800	1.97	84,600	.75
Alfalfa hay '52	-	45,900	5.39	11.05	-	1.9	tons	87,100	2,787,300	31,700	2.22	14,200	1.11
Alfalfa hay '53	-	55,600	5.98	8.03	-	2.1	tons	114,700	2,524,200	42,506	2.28	13,100	1.34
Alfalfa hay '54	-	71,800	8.52	14.17	-	2.0	tons	143,900	3,310,600	47,900	2.32	23,900	1.38
Alfalfa hay '55	-	77,100	8.97	12.57	-	2.0	tons	152,400	3,657,200	50,500	2.33	26,600	1.30
Alfalfa hay '56	-	66,600	8.41	12.68	-	1.7	tons	113,300	2,946,500	46,300	2.09	20,300	.82
Alfalfa hay '57	-	70,600	8.77	14.26	-	2.1	tons	148,100	2,962,000	52,200	2.47	18,400	1.04
Wild hay '52	-	96,700	11.36	6.19	-	.6	tons	60,010	1,561,400	36,306	.77	60,400	.53
Wild hay '53	-	96,100	10.33	4.12	-	.8	tons	76,230	1,295,100	33,400	1.00	62,700	.68
Wild hay '54	-	68,800	8.17	4.11	-	.8	tons	53,300	960,200	23,800	.99	45,000	.67
Wild hay '55	-	66,400	7.72	3.42	-	.8	tons	52,400	995,000	10,900	1.02	55,500	.74
Wild hay '56	-	41,100	5.19	2.32	-	.6	tons	25,700	539,100	13,800	.72	27,300	.58
Wild hay '57	-	42,900	5.33	2.25	-	.7	tons	31,100	467,400	21,400	.87	21,500	.58
Sugar beets '52	1,160	1,080	.13	.61	10.9	11.7	tons	12,620	154,100	1,080	11.6	-	-
Sugar beets '53	2,460	1,640	.17	.96	10.0	14.9	tons	24,510	301,500	1,640	14.9	-	-
Sugar beets '54	4,370	4,210	.50	2.11	9.6	9.9	tons	41,760	492,800	4,210	9.9	-	-
Sugar beets '55	4,130	3,990	.46	1.88	10.9	11.2	tons	44,870	547,500	3,990	11.2	-	-
Sugar beets '56	4,180	4,050	.51	2.93	13.2	13.6	tons	55,080	681,700	4,050	13.6	-	-
Sugar beets '57	4,620	4,540	.56	3.35	11.0	11.2	tons	61,000	695,400	4,540	13.5	-	-
Potatoes '52	720	710	.08	1.04	104	106	cwt.	75,060	265,100	560	123.4	150	39.6
Potatoes '53	730	530	.06	.39	67	92	cwt.	48,666	121,600	410	104.9	120	40.3
Potatoes '54	480	470	.06	.68	118	121	cwt.	56,700	158,500	350	141.4	120	55.3
Potatoes '55	500	490	.06	.58	117	119	cwt.	58,600	167,300	380	140.8	110	46.4
Potatoes '56	420	400	.05	.33	100	105	cwt.	42,100	76,000	300	130.0	100	31.0
Potatoes '57	400	390	.05	.64	101	103	cwt.	40,200	131,900	310	122.3	80	28.8

- Continued

			Relative Importance		Yield					Irrigated		Non-irrigated	
			Harvested										
Crop-Year	Area Planted Acres	Area Harvested Acres	Area Percent	Value Percent	Per Planted Acre	Per Harvested Acre	Unit of Yield	Production Units	Crop Value Dollars	Area Harvested Acres	Yield per Harvested Acre Units	Area Harvested Acres	Yield per Harvested Acre Units
Flaxseed '52	1,100	700	.08	.06	4.0	6.3	bu.	4,400	15,400	-	-	700	6.3
Flaxseed '53	1,800	1,700	.18	.13	6.3	7.2	bu.	12,300	40,300	-	-	1,700	7.2
Flaxseed '54	10,900	9,400	1.16	.71	5.6	6.4	bu.	60,600	166,000	200	9.0	9,200	6.4
Flaxseed '55	9,600	9,300	1.07	.74	8.7	9.0	bu.	83,900	215,900	100	15.0	9,200	9.0
Flaxseed '56	11,200	10,500	1.33	.93	7.2	7.6	bu.	80,100	216,000	500	12.4	10,000	7.4
Flaxseed '57	9,200	6,300	.78	.40	3.4	4.9	bu.	30,900	32,400	-	-	6,300	4.9
Alfalfa seed '52	-	8,300	.93	1.17	-	99	lbs.	819,000	294,500	2,100	135	6,200	86
Alfalfa seed '53	-	6,200	.67	.36	-	79	lbs.	491,000	112,100	3,900	80	2,300	78
Alfalfa seed '54	-	5,200	.62	.95	-	115	lbs.	596,000	220,900	3,100	131	2,100	83
Alfalfa seed '55	-	5,300	.62	.25	-	84	lbs.	444,000	80,600	3,500	87	1,800	70
Alfalfa seed '56	-	3,700	.47	.43	-	83	lbs.	30,700	99,000	1,800	89	1,900	77
Alfalfa seed '57	-	3,500	.43	.45	-	113	lbs.	397,000	93,100	2,300	145	1,200	53
Crested wheatgrass seed '52		300	.04	.03	-	67	lbs.	20,000	6,800	-	-	300	66
Crested wheatgrass seed '53		700	.03	.04	-	86	lbs.	60,000	11,100	-	-	700	85
Crested wheatgrass seed '54		650	.07	.05	-	82	lbs.	53,000	11,000	-	-	650	81
Crested wheatgrass seed '55		100	.01	.01	-	140	lbs.	14,000	2.900	-	-	100	140
Crested wheatgrass seed '56		250	.03	.02	-	40	lbs.	10,000	3,600	-	-	250	40
Crested wheatgrass seed '57		600	.07	.04	-	90	lbs.	54,000	8,300	-	-	600	90
Sweetclover seed '52		150	.02	.02	-	227	lbs.	34,000	3,000	150	227	-	-
Sweetclover seed '53		100	.01	.005	-	200	lbs.	20,000	1,700	100	200	-	-
Sweetclover & mustard seed '54		200	.03	.02	-	300	lbs.	60,000	4,600	100	200	100	400
Sweetclover & mustard seed '55		250	.03	.015	-	252	lbs.	63,000	4,500	50	260	200	250
None reported for '56													
Sweetclover seed '57		600	.07	.01	-	50	lbs.	30,000	2,400	-	-	600	50
Total '52	718,380	851,240	100.00	100.00					25,224,800	109,990		741,250	
Total '53	751,290	929,470	100.00	100.00					31,435,000	122,750		806,720	
Total '54	676,650	842,430	100.00	100.00					23,363,400	110,360		732,070	
Total '55	679,230	859,930	100.00	100.00					29,094,300	88,420		771,510	
Total '56	703,100	791,500	100.00	100.00					23,237,200	98,550		692,950	
Total '57	701,620	805,330	100.00	100.00					20,692,000	108,250		697,080	

Compiled from Montana Agricultural Statistics, United States Department of Agriculture and Montana Department of Agriculture, Helena, Montana: Volumes V, VI and VII, 1954, 1956, 1958.

APPENDIX H

ble 30.--Farm characteristics and equipment in the three principal counties of the Milk River Area, Montana, 1950 and 1954

		Blaine	Phillips	Valley	Three-county total or average
nd area acres		2,730,880	3,346,560	3,175,040	9,252,480
mber of farms:					
All farms	1954	734	711	1,098	2,543
	1950	808	803	1,167	2,778
Commercial farms	1954	694	648	1,020	2,362
	1950	718	709	1,040	2,467
nd in farms, acres	1954	2,267,249	1,776,884	1,780,465	5,824,598
	1950	1,779,423	1,782,475	1,548,467	5,110,365
erage size of farm, acres	1954	3,089	2,499	1,622	2,403
	1950	2,202	2,220	1,327	1,916
lue of land and buildings, dollars:					
Average per farm	1954	41,954	34,581	36,592	37,709
	1950	27,022	24,252	23,073	24,780
Average per acre, dollars	1954	14.58	14.72	25.20	18.17
	1950	12.25	11.05	17.85	13.72
opland:					
Total farms reporting	1954	711	673	1,069	2,453
	1950	768	769	1,136	2,673
Total acres	1954	335,502	320,575	687,167	1,343,244
	1949	319,500	314,210	665,328	1,299,038
Harvested, acres	1954	204,359	201,390	368,163	773,912
	1949	169,619	134,254	322,133	626,006
Cultivated, summer fallow:					
Farms reporting	1954	424	461	930	1,815
	1949	464	493	907	1,864
Acres	1954	122,029	106,000	281,456	509,485
	1949	111,565	95,933	219,272	426,770
Land in crops grown in strips for wind erosion control:					
Farms reporting	1954	166	154	542	862
Acres	1954	73,154	37,190	190,854	301,198
nd pastured:					
Total farms reporting	1954	672	675	941	2,288
	1949	765	772	1,075	2,562
Acres	1954	1,916,227	1,449,381	1,056,832	4,422,440
	1949	1,454,287	1,491,872	906,420	3,852,579
rigated land in farms:					
Farms reporting	1954	381	277	238	896
	1949	367	287	282	936
Acres	1954	50,925	50,455	30,485	131,865
	1949	45,548	31,618	35,036	112,202
rigated land in farms according to use:					
Irrigated cropland harvested:					
Farms reporting	1954	380	271	238	889
	1949	358	262	263	883
Acres	1954	46,796	44,360	26,928	118,084
	1949	40,125	27,387	30,231	97,743
Irrigated pasture:					
Farms reporting	1954	118	63	46	227
	1949	133	103	78	314
Acres	1954	4,129	6,095	3,557	13,781
	1949	4,331	3,683	2,943	10,957
arms by economic class, number:					
Class I, $24,00 and more sales	1954	77	67	30	174
Class II, $10,000 - $24,999 sales	1954	241	197	224	662
Class III, $5,000 - $9,999 sales	1954	168	181	320	669
Class IV, $2500 - $4999 sales	1954	98	105	237	440
Class V, $1200 - $2499 sales	1954	81	72	170	323
Class VI, $250 - $1199 sales	1954	29	26	39	94
her farms, number:	1954	64	25	85	174
Part-time	1954	30	17	45	92
Residential	1954	30	5	35	70
Abnormal	1954	4	3	5	12
elephone, farms reporting	1954	162	207	313	682
lectricity, farms reporting	1954	632	511	879	2,022
rain combines, farms reporting	1954	442	381	719	1,542
rain combines, number	1954	493	434	837	1,764
ick-up hay balers: Farms reporting	1954	152	90	196	438
Number	1954	165	93	197	455
ield forage harvesters, number	1954	81	9	33	123
eservoirs, number	1954	1,376	1,554	1,097	4,027
ractors, number	1954	1,497	1,295	2,036	4,828
otor trucks, on farms, number	1954	1,136	1,295	2,036	4,467
utomobiles, on farms, number	1954	824	732	1,161	1,717

ompiled from Agricultural Census, 1950 and 1955, for Montana; Bureau of the Census, Washington, D.C.

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MILK RIVER AREA MAPS
MONTANA

Five maps showing range vegetal type and potential improvement sites in color. Surface resource inventory formula areas are outlined in red and numbered. Each number designates a descriptive formula for each formula area. Formulas in the Area Classification part of the area show the range type, the three principal species of plants, range condition, recommended stocking rate in animal unit months per acre, Range Site, land use capability, slope, degree of erosion and the depth, texture, permeability and parent material of the soil. The study areas are outlined in color. The maps are printed on a black sectionized base, showing landownership, drainage, and principal cultural features.

Sheet 1:	Northwestern part. Blaine County and western Phillips County north of Milk River.
Sheet 2:	Northeastern part. Parts of eastern Phillips and western Valley Counties north of Milk River.
Sheet 3:	Southwestern part. Blaine County south of Milk River and the part of Chouteau County within the area.
Sheet 4:	South central part. Phillips County south of Milk River.
Sheet 5:	Southeastern part. Western Valley County south of Milk River.

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UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
AREA 3

MILK RIVER AREA MAP

MONTANA

SHOWING

580(281)
Un345L

O F
C A N A D A
R 22 E
108°45'
R 23 E
R 24 E
108°30'
R 25 E
R 26 E
108°15'
R 27 E
R 28 E
108°00'
R 29 E
R 30 E
107°45'
49°00'
TO SWIFT CURRENT, SASKATCHEWAN
ISOLATED TRACT CLASSIFICATION
ALKALI LAKE
Lowrane
BLAINE CO.
PHILLIPS CO.
T 37 N
T 36 N
T 35 N
T 34 N
T 33 N
T 32 N
T 31 N
A T E D
A C T
C L A S S I F I C A T I O N
Woody
Murray
Hogeland
Turner
GREAT NORTHERN
BOW LAKE
Loring
ISOLATED
TRACT
CLASSIFICATION
48°45'
TO WHITEWATER
BLACK COULEE WATERFOWL REFUGE
Harlem
Matador
48°30'
R 22 E
FORT BELKNAP AGENCY
Savoy
Coburg
F O R T
R 23 E
108°45'
107°45'
Garland

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
AREA 3

MILK RIVER AREA MAP

MONTANA

SHOWING

VEGETATION, RANGE CONDITION, RECOMMENDED STOCKING RATE
RANGE SITE AND LAND USE CAPABILITY
AND POTENTIAL IMPROVEMENT SITES

SHEET 1 OF 5

0 2 3 4 5
Scale in Miles

580(281)
Un345L

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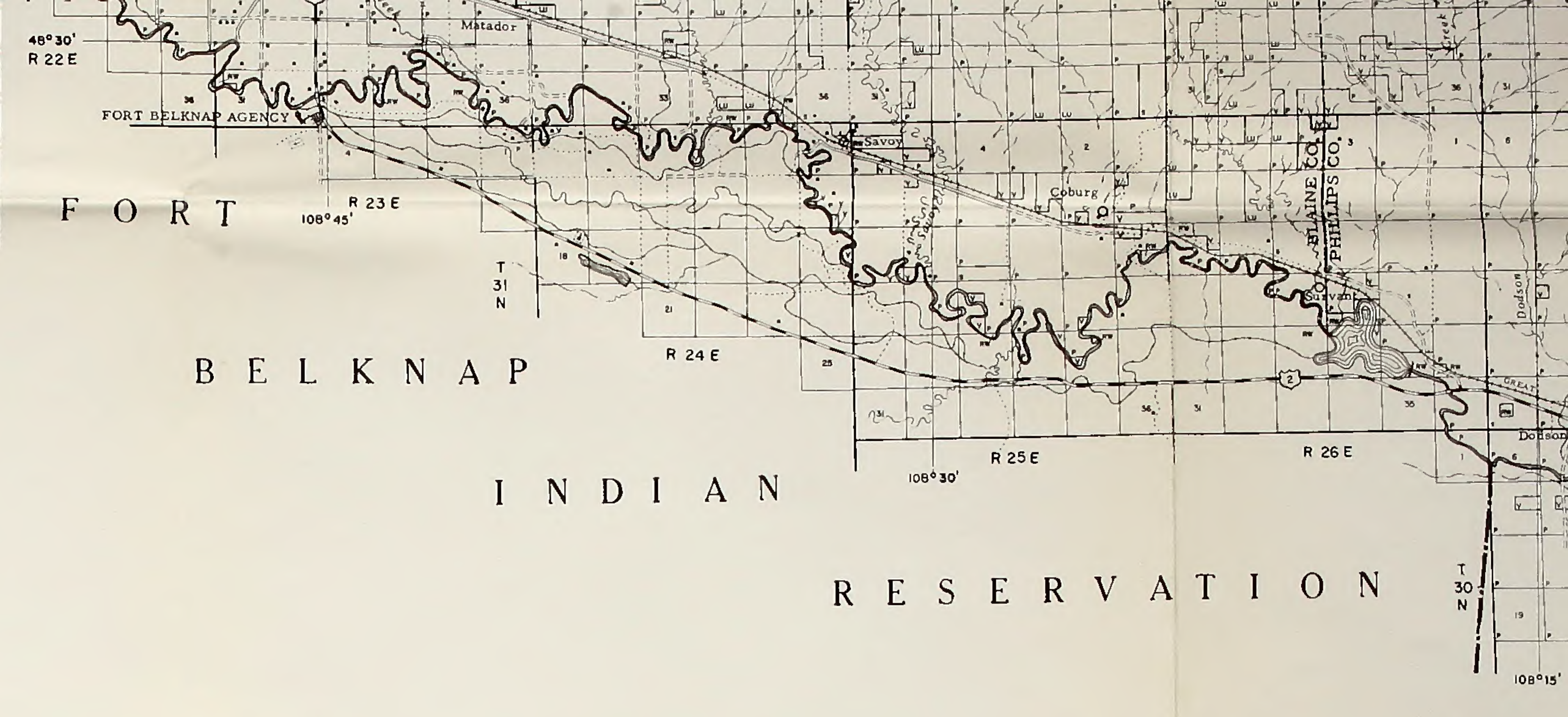
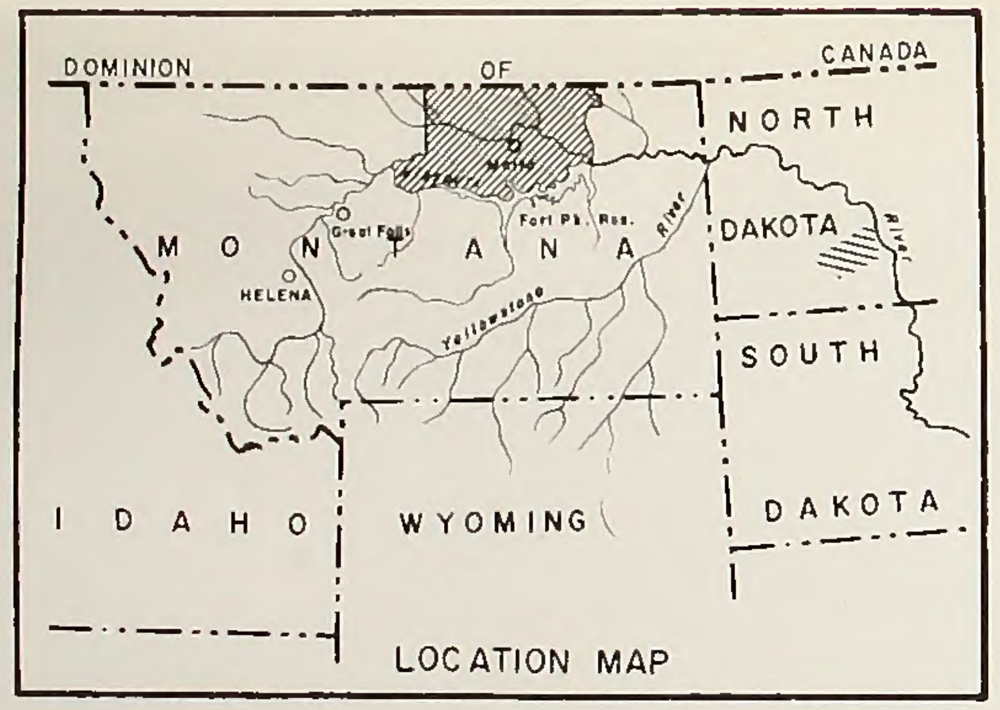


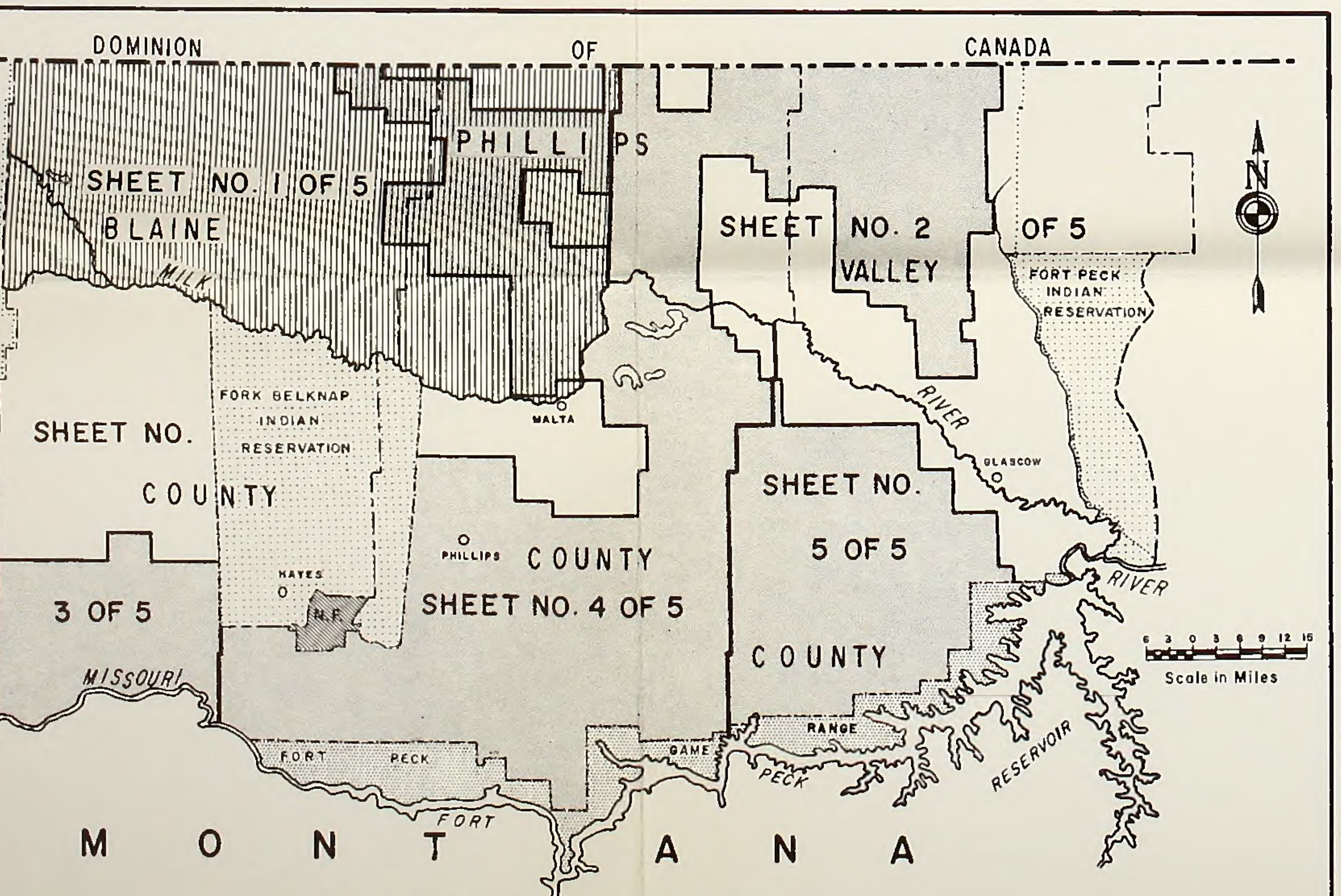


LOCATION MAP

POTENTIAL IMPROVEMENT SITES

	Reservoir
	Spring with Trough
	Well and Windmill
	Water Spreading Dikes

● ● ● ● ● ● ●	Boundary of Grazing District Area
🟥	Study Area Boundary Line (Missouri River Basin Studies, Bureau of Land Management)
🟩	Isolated Tract Classification Boundary Line
	Formula Area Boundary Line
	Wildlife Refuge Boundary Line



EXPLANATION

	Study Areas
	Isolated Tract Classification
	Indian Reservations
	Fort Peck Game Range
	National Forest
	Subject Sheet

INSET MAP OF MILK RIVER AREA
KEY TO 5 SHEETS

LEGEND

HYDROGRAPHIC FEATURES

- River
- Lake
- Perennial stream
- Intermittent stream
- Canal
- Dam
- Intermittent lake
- Contour Furrow
- FORT PECK RESERVOIR
- Well, water
- Artesian well
- Spring
- Spring, Improved
- Dike

HYPSOGRAPHIC FEATURES

- Depression contours
- Prominent peak
- Bluffs or cliffs (barrier to livestock)

CULTURE

- Windmill
- Well, oil or gas
- Oil tanks
- Corral
- Open pit mine or quarry
- Bridge
- Airport
- Cemetery

CULTURE

- Dwelling, Occupied
- Church
- School
- Ranger Station
- Post Office
- Pipeline
- Telephone or Telegraph line
- Power Transmission line
- Fence
- Cropland
- Water Spreader
- Marsh or Swamp
- Found Corner

ROADS

- U.S. State Highway (hard surface)
- State Highway (hard surface)
- State Highway (Improved dirt road)
- Improved dirt road
- Unimproved dirt road
- Trail, jeep road
- Railroad

BOUNDARIES

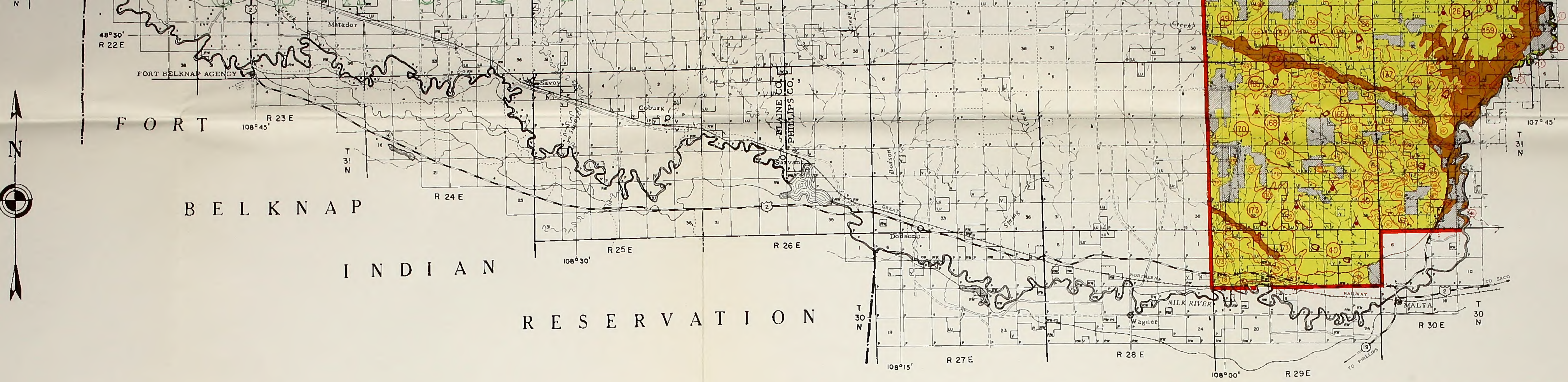
- National
- State
- County
- National Forest, Indian Reservation
- Fort Peck Game Range

LANDOWNERSHIP DESIGNATION

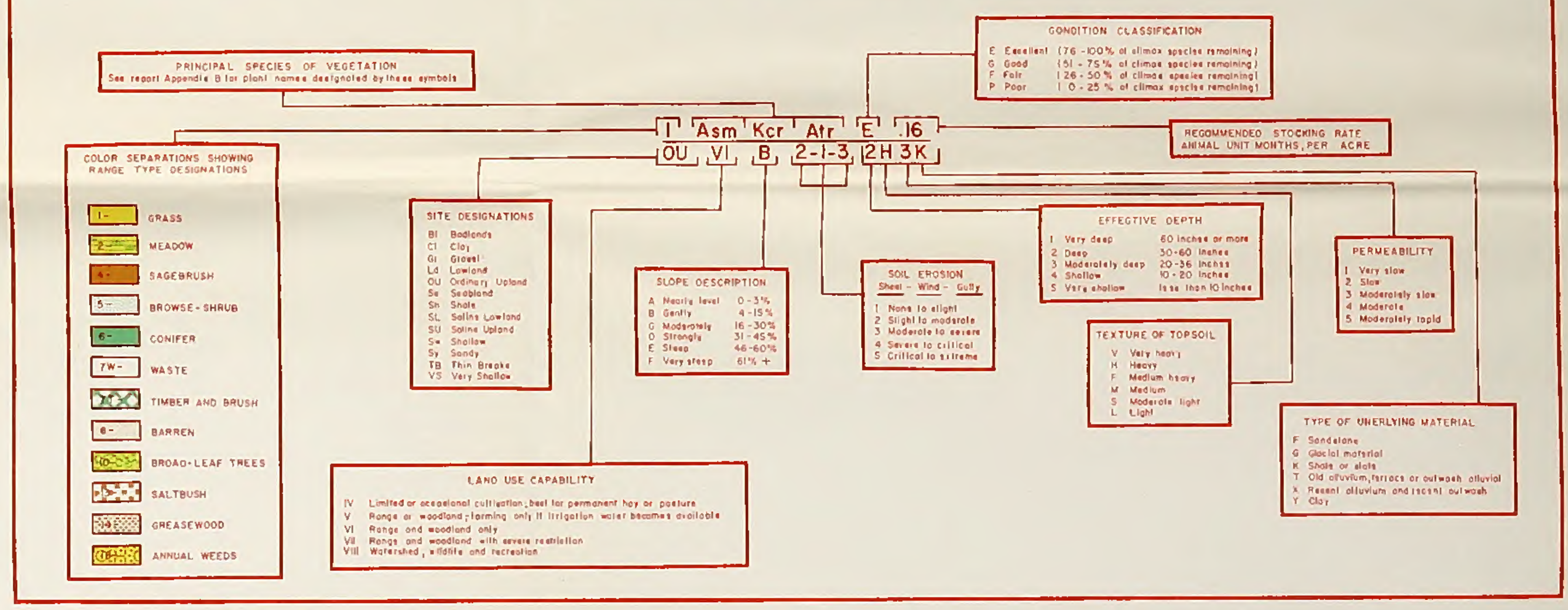
LANDOWNERSHIP STATUS

V	PUBLIC DOMAIN	MP	MILITARY PURCHASE
SDW	PUBLIC DOMAIN (Stock Driveway)	IA	INDIAN TRUST ALLOTMENT
S	STATE	WR	WILDLIFE REFUGE
PWR	PUBLIC WATER RESERVE	V-GR	PUBLIC DOMAIN - GAME RANGE
RW	RECLAMATION WITHDRAWAL	PSW	POWERSITE WITHDRAWAL
P	PRIVATE	RW-PS	RECLAMATION WITHDRAWAL-POWERSITE WITHDRAWAL
PS	POWERSITE WITHDRAWAL	LU	LAND UTILIZATION Project - Federal land acquired under Title III of the Bankhead Jones Act of 1937
MW	MILITARY WITHDRAWAL		

Compiled and drafted by John L. Kovács - Area 3 - Denver, 1959.



EXPLANATION OF SYMBOLS IN FORMULA



I Asm Kcr Atr E .16
OU VI B 2-1-3 2H 3K

PRINCIPAL SPECIES OF VEGETATION
See report Appendix B for plant names designated by these symbols

CONDITION CLASSIFICATION
- E Excellent (76 - 100 % of climax species remaining)
- G Good (51 - 75 % of climax species remaining)
- F Fair (26 - 50 % of climax species remaining)
- P Poor (0 - 25 % of climax species remaining)

RECOMMENDED STOCKING RATE
ANIMAL UNIT MONTHS, PER ACRE

COLOR SEPARATIONS SHOWING RANGE TYPE DESIGNATIONS
- 1- GRASS
- 2- MEADOW
- 4- SAGEBRUSH
- 5- BROWSE - SHRUB
- 6- CONIFER
- 7W- WASTE
- TIMBER AND BRUSH
- 8- BARREN
- 10- BROAD-LEAF TREES
- SALTBUSH
- 14 GREASEWOOD
- ANNUAL WEEDS

SITE DESIGNATIONS
- Bl Badlands
- Cl Clay
- Gl Gravel
- Ld Lowland
- OU Ordinary Upland
- Se Seabland
- Sh Shale
- SL Saline Lowland
- SU Saline Upland
- Sw Shallow
- Sy Sandy
- TB Thin Breaks
- VS Very Shallow

SLOPE DESCRIPTION

A	Nearly level	0 - 3%
B	Gently	4 - 15%
C	Moderately	16 - 30%
D	Strongly	31 - 45%
E	Steep	46 - 60%
F	Very steep	61% +

SOIL EROSION
Sheet - Wind - Gully
- 1 None to slight
- 2 Slight to moderate
- 3 Moderate to severe
- 4 Severe to critical
- 5 Critical to extreme

EFFECTIVE DEPTH

1	Very deep	60 inches or more
2	Deep	30 - 60 inches
3	Moderately deep	20 - 36 inches
4	Shallow	10 - 20 inches
5	Very shallow	less than 10 inches

TEXTURE OF TOPSOIL
- V Very heavy
- H Heavy
- F Medium heavy
- M Medium
- S Moderate light
- L Light

PERMEABILITY
- 1 Very slow
- 2 Slow
- 3 Moderately slow
- 4 Moderate
- 5 Moderately rapid

TYPE OF UNERLYING MATERIAL
- F Sandstone
- G Glacial material
- K Shale or slate
- T Old alluvium, terrace or outwash alluvial
- X Recent alluvium and recent outwash
- Y Clay

LAND USE CAPABILITY
- IV Limited or occasional cultivation; best for permanent hay or pasture
- V Range or woodland; farming only if irrigation water becomes available
- VI Range and woodland only
- VII Range and woodland with severe restriction
- VIII Watershed, wildlife and recreation

CLASSIFICATION FORMULAS

① GRASS

①	I Asm Sco Kcr G .28	OU IV B 1-1-1 2F 3G
②	I Asm Sco Bgr G .30	OU IV B 2-1-1 3F 3G
③	I Asm Bgr Sco G .30	Cl IV B 1-1-1 2H 2K
④	I Asm Bgr Atr G .28	Cl IV A 1-1-1 2H 2K
⑤	I Asm Sco Bgr G .27	Cl IV B 2-1-1 2H 2K
⑥	I Bgr Asm Sco G .24	OU IV B 1-1-1 2F 3G
⑦	I Asm Sco Mcu G .25	OU VI G 2-1-1 3F 3G
⑧	I Del Asm G .40	SL VI A 1-1-1 1V 2K
⑨	I Asm Sco Kcr G .32	OU IV B 1-1-1 2F 3G
⑩	I Asm Sco Atr G .28	Gl IV B 1-1-1 2H 2K
⑪	I Asl G .40	OU IV B 1-1-1 2F 3G
⑫	I Asm Sco Atr G .26	OU IV B 1-1-1 2F 3G
⑬	I Asm Sco Cll G .30	OU VI C 2-1-1 3F 3G
⑭	I Asm Sco Bgr G .28	OU IV B 1-1-1 2F 4G
⑮	I Asm Bgr Sco G .25	OU IV A 1-1-1 2F 3G
⑯	I Sco Asm Bgr G .30	OU VI C 2-1-1 3M 4G
⑰	I Pse Del Asm G .50	Ld V A 1-1-1 1V 1K
⑱	I Asm Bgr Sco G .28	OU IV B 1-1-1 2F 3G
⑲	I Asm Sco Bgr G .32	OU IV B 1-1-1 2F 3G
⑳	I Asm Bgr Atr C .27	Cl IV B 1-1-1 2M 3G
㉑	I Asm Sco Bgr G .30	OU IV B 1-1-1 2F 3G
㉒	I Asm Kcr Bgr G .33	Gl IV A 1-1-1 2H 2K
㉓	I Sco Bgr Asm G .28	OU IV B 1-1-1 3M 4G
㉔	I Sco Asm Bgr G .30	OU IV B 1-1-1 3M 4G
㉕	I Sco Asm Bgr G .33	OU VI C 1-1-1 3M 4G
㉖	I Sco Asm Bgr G .30	OU IV B 1-1-1 3M 4G
㉗	I Bgr Sco Asm G .27	OU IV B 1-1-1 3M 4G
㉘	I Del Asm G .25	SL VI A 1-1-1 1L 5T
㉙	I Sco Bgr Mcu F .25	OU VI G 1-1-1 4M 4G
㉚	I Sco Mcu Asc G .15	TB VII O 2-1-2
㉛	I Bgr Sco Asm F .25	OU IV B 2-1-1 1L 5T
㉜	I Bgr Mcu Sco F .23	OU VI C 1-1-1 4M 4G
㉝	I Bgr Sco Atr F .23	OU IV B 1-1-1 3M 4G
㉞	I Bgr Asm Atr F .25	OU IV A 1-1-1 1M 4T
㉟	I Del Asm Sco G .35	SL IV A 1-1-1 1M 4T
㊱	I Bgr Asm Sco F .25	OU VI C 1-1-1 4M 4G
㊲	I Bgr Sco Asm F .25	OU IV B 1-1-1 3M 4G
㊳	I Bgr Sco Mcu G .20	Sw VII O 2-1-1
㊴	I Bgr Asm Del G .38	OU VI B 2-1-1 1M 4T
㊵	I Bgr Asm Sco G .28	OU VI C 1-1-1 3M 4G
㊶	I Bgr Mcu Sco G .18	Sw VII O 2-1-1
㊷	I Sco Asm Bgr G .29	OU VI C 1-1-1 3M 4G
㊸	I Sco Mcu Asm G .20	Sw VII O 2-1-1
㊹	I Bgr Asm Sco G .27	OU VI C 1-1-1 3M 4G
㊺	I Del Asm G .30	SL VI B 1-1-1 1L 5T
㊻	I Bgr Sco Asm F .25	OU VI C 1-1-1 4M 4G
㊼	I Bgr Asm Sco G .27	OU VI C 1-1-1 4M 4G
㊽	I Bgr Sco Asm G .26	OU IV B 1-1-1 3M 4G
㊾	I Sco Bgr Asm G .30	OU VI C 1-1-1 3M 4C
㊿	I Sco Asm Bgr E .33	OU VI C 1-1-1 3M 4G
(51)	I Sco Asm Kcr G .30	OU VI B 1-1-1 2M 4G
(52)	I Sco Asm Cll G .32	OU IV B 1-1-1 2M 4G
(53)	I Sco Gll Asm G .27	OU VI C 2-1-1 3M 4G
(54)	I Sco Asm Bgr G .28	OU VI C 2-1-1 3M 4G
(55)	I Sco Asm Bgr G .28	OU IV B 2-1-1 2F 3G
(56)	I Kcr Asm Sco G .18	Sw VI C 2-1-1 4F 3G
(57)	I Bgr Asm Sco G .22	Sw VI G 1-1-1 4F 3G
(58)	I Asm Bgr Kcr G .28	OU IV B 1-1-1 4F 3G
(59)	I Asm Sco Bgr G .32	OU IV B 1-1-1 1F 3G
(60)	I Sco Asm Gll G .18	Sw VII O 3-1-2
(61)	I Asm CHY Sco G .18	Sw VI C 2-1-1 4F 3G
(62)	I Asm Pse Atr F .20	Cl IV B 2-1-2 1H 2K
(63)	I Mcu Asm Sco G .15	TB VII O 3-1-2
(64)	I Asm Mcu Sco G .22	Sw VII O -2-1-1
(65)	I Asm Mcu Wde G .15	TB VII O 3-1-1
(66)	I Asm Pse Atr G .19	Sc VI A 1-1-1 1V 2K
(67)	I Asm Bgr Sco G .25	Cl VI B 1-1-1 2H 2K
(68)	I Asm Bgr Sco G .26	OU IV B 1-1-1 2F 3G
(69)	I Asm Sco Atr C .25	OU IV B 1-1-1 1F 3G
(70)	I Asm Sco Kcr G .30	OU IV B 1-1-1 1F 3G
(71)	I Asm Sco Kcr G .28	OU VI C 2-1-1 2F 3G
(72)	I Sco Asm Bgr G .25	OU IV B 1-1-1 1F 3G
(73)	I Sco Asm Kcr G .20	Sw VII D 3-1-1 4M 4G
(74)	I Clo Asm Asc G .10	TB VII O 3-1-3
(75)	I Sco Asm Kcr G .28	OU IV B 1-1-1 1F 3G
(76)	I Asm Asc Sco G .16	TB VII O 3-1-2
(77)	I Asm Cll Asc G .13	TB VII D 3-1-3
(78)	I Sco Asm Mcu G .20	Sw VII O 3-1-2
(79)	I Sco Bgr Asm G .27	OU IV B 1-1-1 2M 4G
(80)	I Asm Asc Cll G .15	TB VII O 3-1-3
(81)	I Clo Asc Asm G .07	Bl VII E 4-1-4
(82)	I Asm Sco Pse G .40	Ld IV A 1-1-1 1H 2K
(83)	I Asm Sco Mcu G .22	Sw VI C 2-1-1 4M 4G
(84)	I Asm Bgr Sco G .24	OU IV A 1-1-1 2F 3G
(85)	I Kcr Bgr GHY F .09	Sw VI B 2-1-2 4H 2K
(86)	I Bgr Sco Gll G .22	Sw VII O 2-1-2
(87)	I Kcr Asm Bgr G .26	OU IV A 1-1-1 2M 4G
(88)	I Sco Bgr Cll G .24	Sw VII O 2-1-2
(89)	I Bgr Asm Kcr G .27	OU IV B 1-1-1 3M 4G
(90)	I Sco Cll Asm G .15	TB VII O 2-1-2
(91)	I Asm Gll Kcr G .22	Sw VI G 2-1-2 4F 3C
(92)	I Asm Bgr Sco G .28	OU IV B 1-1-1 2M 4G
(93)	I Bgr Asm Sco G .28	OU IV B 1-1-1 3M 4G
(94)	I Asm Kcr Pse G .26	Cl VI C 2-1-2 2H 2K
(95)	I Asm Sco Kcr G .27	OU IV B 1-1-1 2F 3G
(96)	I Asm Bgr Kcr G .26	OU VI C 2-1-1 3F 3G
(97)	I Asm Clo Asc G .11	TB VII O 2-1-3
(98)	I Asm Pse Kcr G .25	Cl IV B 1-1-2 2H 2T
(99)	I Acr G .40	OU IV A 1-1-1 2M 4G
(100)	I Asm Sco Cll G .16	Sw VII D 2-1-3
(101)	I Cll Bgr Kcr G .26	OU VI C 2-1-2 3F 3G
(102)	I Asm Pse Kcr F .20	Gl IV B 1-1-2 2H 2T
(103)	I Bgr Asm Kcr G .28	OU IV B 1-1-1 2M 4G
(104)	I Bgr Asm Sco G .27	OU VI C 2-1-1 3M 4G
(105)	I Asm Clo Svl G .17	Sw VII D 2-1-2
(106)	I Asm Wde Atr F .12	SU VI B 2-1-2 3H 2K
(107)	I Bgr Asm Kcr G .29	OU IV B 1-1-1 2F 3G
(108)	I Bgr Asm Kcr G .27	OU IV B 1-1-1 2F 3G
(109)	I Bgr Asm Sco G .25	OU VI C 2-1-2 3F 3G
(110)	I Asm Aco Atr G .20	Cl IV A 1-1-1 2H 2K
(111)	I Bgr Sco Cfl G .22	OU VI C 2-1-2 3F 3G
(112)	I Asm Bgr Kcr G .16	Sw VI C 2-1-2 4F 4G
(113)	I Bgr Asm Sco G .26	OU IV B 1-1-1 3F 3G
(114)	I Asm Bgr Sco G .29	OU IV B 1-1-1 3F 3G
(115)	I Asm Clo Kcr G .20	Sw VII O 2-1-3
(116)	I Asm Kcr Bgr G .20	Gl VI G 2-1-2 2H 2K
(117)	I Asm Clo Pse G .10	TB VII O 3-1-3
(118)	I Bgr Asm Kcr G .26	OU IV B 1-1-1 3F 3G
(119)	I Sco Asm G .18	Sw VI C 2-1-2 4M 4G
(120)	I Bgr Kcr Asm F .17	Sw VI C 2-1-2 4H 2K
(121)	I Bgr Kcr Asm F .17	Ld VI C 2-1-2 4H 2K
(122)	I Asm Sco Bgr G .20	Sw VII O 2-1-3
(123)	I Bgr Asm Kcr G .25	OU IV B 1-1-1 3M 4G
(124)	I Sco Cll Bgr G .23	Sw VI C 2-1-2 4M 4G
(125)	I Asm Clo Asc G .11	TB VII O 3-1-3
(126)	I Asc Clo Asm G .08	Bl VII E 4-1-3
(127)	I Asm Bgr Wde F .16	Gl VI B 2-1-2 2H 2K
(128)	I Asm Clo Asc G .10	TB VII E 3-1-3
(129)	I Asm Pse Sco G .40	Ld IV B 1-1-1 1H 2T
(130)	I Asm Asc JUP G .10	TB VII E 3-1-3
(131)	I Bgr Sco Kcr G .26	OU VI C 2-1-1 3M 4G
(132)	I Sco Asm Bgr G .30	OU IV B 1-1-1 2M 4G
(133)	I Bgr Sco Gll G .23	Sw VI C 2-1-1 4M 4G
(134)	I Asm Bgr Cll G .27	Gl IV B 2-1-2 2H 2K
(135)	I Mcu Asc Sco G .10	Bl VII E 2-1-2
(136)	I Asm Pse Aco G .40	Ld IV A 1-1-1 1M 4T
(137)	I Sco Kcr Asm G .30	OU VI C 1-1-1 3M 4G
(138)	I Sco Bgr Asm G .30	OU IV B 1-1-1 2M 4G
(139)	I Asm Sco Asc G .14	TB VII O 2-1-2
(140)	I Bgr Asm Sco G .22	Sw VI G 1-1-1 4F 3G
(141)	I Asm Bgr Sco G .29	OU VI C 1-1-1 2M 4G
(142)	I Sco Kcr Bgr G .18	Sw VII O 2-1-1
(143)	I Sco Bgr Asm G .32	OU IV B 1-1-1 2M 4G
(144)	I Asm Asc Sco G .15	TB VII O 2-1-2
(145)	I Asm Sco Kcr G .40	Sy VI B 1-1-1 1L 5F
(146)	I Asm Del Atr C .27	SL IV A 1-1-1 2H 2K
(147)	I Bgr Sco Cll G .22	OU VI C 2-1-1 3F 3G
(148)	I Sco Asm Cll G .28	OU VI B 2-1-1 3M 4G
(149)	I Sco Bgr Asm G .26	OU IV B 1-1-1 2M 4G
(150)	I Asm Asc Sco G .15	TB VII O 3-1-2
(151)	I Sco Asm Gll G .30	OU VI C 2-1-1 3M 4G
(152)	I Bgr Sco Asm G .25	OU IV B 1-1-1 2M 4G
(153)	I Asm Sco Atr G .15	TB VII O 2-1-2
(154)	I Asm Asc JUP G .07	Bl VII E 3-1-3
(155)	I Bgr Asm Sco G .25	OU VI C 1-1-1 3M 4G
(156)	I Asm Bgr Svl G .40	Sy IV B 1-1-1 1S 3F
(157)	I Mcu Asc Sco G .15	TB VII O 2-1-2
(158)	I Sco Gll Asm G .23	Sw VI C 2-1-1 4M 4G
(159)	I Sco Bgr Gll G .25	Sw VI C 2-1-1 4M 4G
(160)	I Asm Asc Sco G .16	TB VII O 2-1-2
(161)	I Asm Sco Mcu G .16	TB VII O 2-1-2
(162)	I Asm Asc Mcu G .14	TB VII E 2-1-2
(163)	I Asm Bgr Sco G .27	OU VI B 1-1-1 3M 4G
(164)	I Sco Asm Asc G .18	Sw VII D 2-1-2
(165)	I Mcu Sco Asm G .20	TB VII O 2-1-1
(166)	I Sco Asm Cll G .18	Sw VII O 2-1-2
(167)	I Bgr Asm Sco G .26	OU VI C 2-1-1 3M 4G
(168)	I Sco Kcr Asm G .30	OU IV B 1-1-1 2M 4G
(169)	I Asm Asc Mcu G .14	TB VII E 2-1-3
(170)	I Asm Sco Kcr G .24	OU IV B 1-1-1 2M 4G
(171)	I Asm Mcu Sco G .17	TB VII O 2-1-2
(172)	I Bgr Sco Asm F .25	OU IV B 1-1-1 2M 4G
(173)	I Sco Mcu Bgr G .23	TB VII O 1-1-1
(174)	I Sco Bgr Cll G .28	OU VI C 1-1-1 3M 4G
(175)	I Del Hju F .25	SL IV A 2-1-1 1F 1T

④ SAGEBRUSH

①	4 Sco Asm Bgr G .26	Cl IV B 1-1-1 3H 3K
②	4 Asm Bgr Atr G .25	Cl IV B 2-1-1 2H 2K
③	4 Asm Atr Pse F .20	Cl VI B 2-1-2 2H 2K
④	4 Aco Asm Pse G .40	Ld IV B 1-1-2 1H 2K
⑤	4 Atr Asm Bgr G .23	Gl VI B 2-1-2 2H 2T
⑥	4 Asm Atr G .26	Cl IV B 1-1-1 3H 2K
⑦	4 Asm Atr Wde G .08	Sh VII E 3-1-3
⑧	4 Asm Atr Asc G .12	TB VII E 3-1-2
⑨	4 Asm Atr Svl G .32	Cl IV A 1-1-1 2H 2K
⑩	4 Asm Atr Wde G .12	TB VII O 3-1-2
⑪	4 Asm Sco Atr G .19	Sw VI C 3-1-1 4M 4G
⑫	4 Asm Atr Wde G .15	TB VII O 2-1-2
⑬	4 Asm Atr G .30	Cl IV A 1-1-1 2H 2K
⑭	4 Asm Atr Svl G .28	Cl IV A 1-1-1 2H 2K
⑮	4 Asm Atr Svl F .19	Cl VI B 3-1-1 3H 2K
⑯	4 Asm Atr Wde G .10	Sh VII D 3-1-3
⑰	4 Sco Asm Atr G .20	Sw VI C 2-1-1 4F 3G
⑱	4 Asm Atr Sco G .14	TB VII O 2-1-2
⑲	4 Asm Atr Wde G .11	TB VII E 3-1-3
⑳	4 Asm Sco Bgr G .32	Sy VI C 1-1-1 2S 5F
㉑	4 Asm Atr Bgr G .25	Cl VI C 2-1-2 3H 2K
㉒	4 Asm Wde Atr G .08	Sh VII O 3-1-2
㉓	4 Bgr Sco Atr G .23	OU IV B 2-1-1 3F 3G
㉔	4 Asm Atr Sco C .14	Cl VI B 2-1-2 2H 2K
㉕	4 Asm Asc Mcu G .14	TB VII E 2-1-2
㉖	4 Asm Bgr Aco G .28	Gl IV B 1-1-1 2H 2K
㉗	4 Asm Bgr Aco G .28	Cl VI B 1-1-1 2H 2K
㉘	4 Asm Bgr Atr G .33	Sy IV B 1-1-1 1M 4T
㉙	4 Bgr Sco Atr G .25	Sy VI B 2-1-1 1L 5F

7 W WASTE

①	7 W	Bl VIII F 1-1-1

8 B BARREN

①	8 B	VIII Dry Lake

⑩ BROAD-LEAF TREES

①	10 Asm Svl SYM G .31	Ld V B 1-1-1 2H 2K

⑭ GREASEWOOD

①	14 Asm Sva Aco F .10	SL VI B 2-1-3 3H 3K

LEGEND

HYDROGRAPHIC FEATURES
- River
- Lake
- Perennial stream
- Intermittent stream
- Canal
- Dam
- Intermittent lake
- Contour Furrow
- FORT PECK RESERVOIR
- Well, water
- Artesian well
- Spring
- Spring, Improved
- Dike

HYPSOGRAPHIC FEATURES
- Depression contours
- Prominent peak
- Bluffs or cliffs (barrier to livestock)

CULTURE
- Windmill
- Well, oil or gas
- Oil tanks
- Corral
- Open pit mine or quarry
- Bridge
- Airport
- Cemetery

CULTURE
- Dwelling, Occupied
- Church
- School
- Ranger Station
- Post Office
- Pipeline
- Telephone or Telegraph line
- Power Transmission line
- Fence
- Cropland
- Water Spreader
- Marsh or Swamp
- Found Corner

ROADS
- U.S. State Highway (hard surface)
- State Highway (hard surface)
- State Highway (improved dirt road)
- Improved dirt road
- Unimproved dirt road
- Trail, jeep road
- Railroad

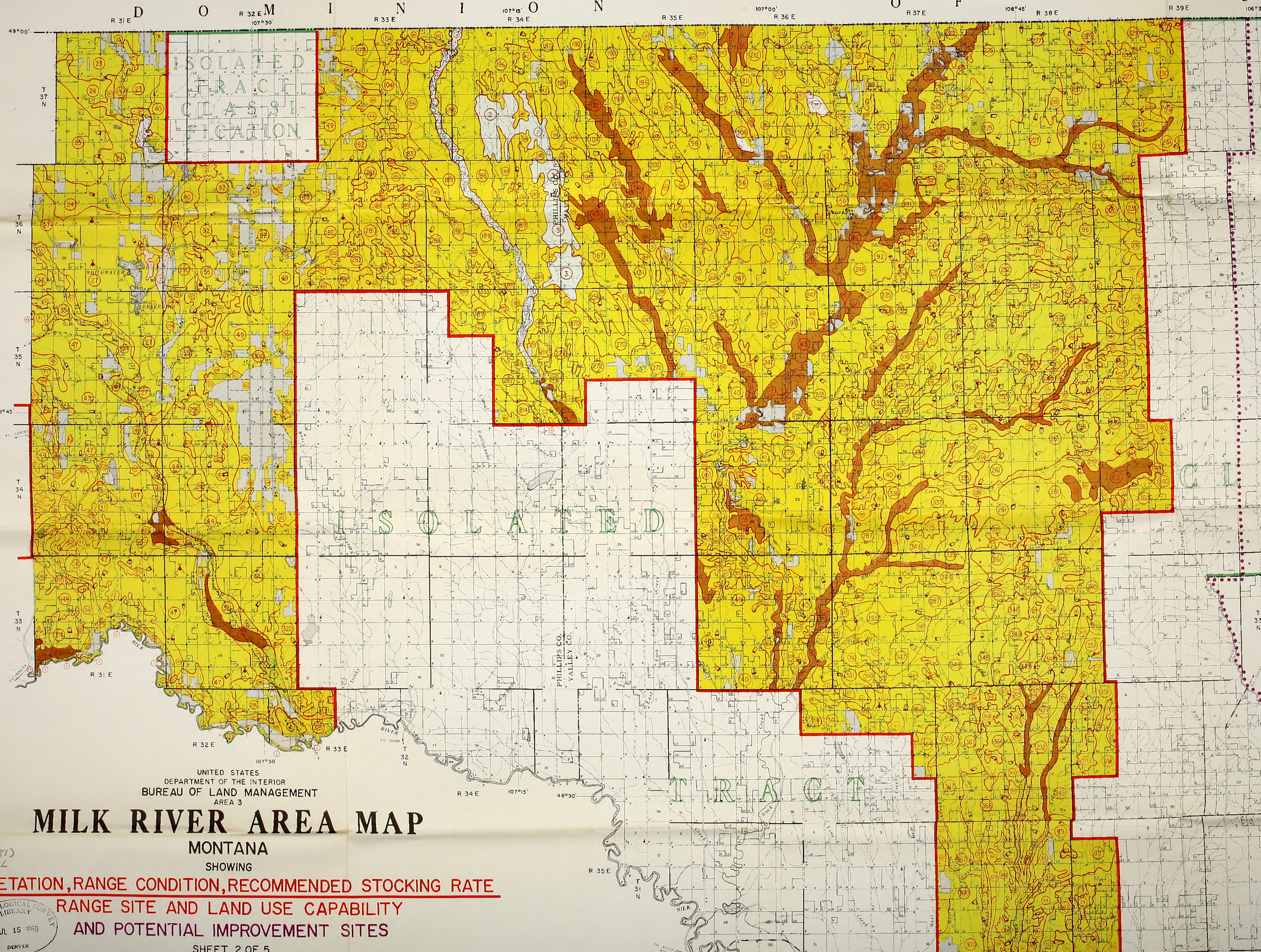
BOUNDARIES
- National
- State
- County
- National Forest, Indian Reservation
- Fort Peck Game Range

LANDOWNERSHIP DESIGNATION

LANDOWNERSHIP STATUS

V	PUBLIC DOMAIN	MP	MILITARY PURCHASE
SOW	PUBLIC DOMAIN (Stock Driveway)	IA	INDIAN TRUST ALLOTMENT
S	STATE	WR	WILDLIFE REFUGE
PWR	PUBLIC WATER RESERVE	V-GR	PUBLIC DOMAIN - GAME RANGE
RW	RECLAMATION WITHDRAWAL	PSW	POWERSITE WITHDRAWAL
P	PRIVATE	RW-PS	RECLAMATION WITHDRAWAL-POWERSITE WITHDRAWAL
PS	POWERSITE WITHDRAWAL	LU	LAND UTILIZATION Project - Federal land acquired under Title III of the Bankhead Jones Act of 1937
MW	MILITARY WITHDRAWAL		

Compiled and drafted by John L. Kovács · Area 3 · Denver, 1959.



UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
AREA 3

MILK RIVER AREA MAP

MONTANA

SHOWING
VEGETATION, RANGE CONDITION, RECOMMENDED STOCKING RATE
RANGE SITE AND LAND USE CAPABILITY
AND POTENTIAL IMPROVEMENT SITES

SHEET 2 OF 5

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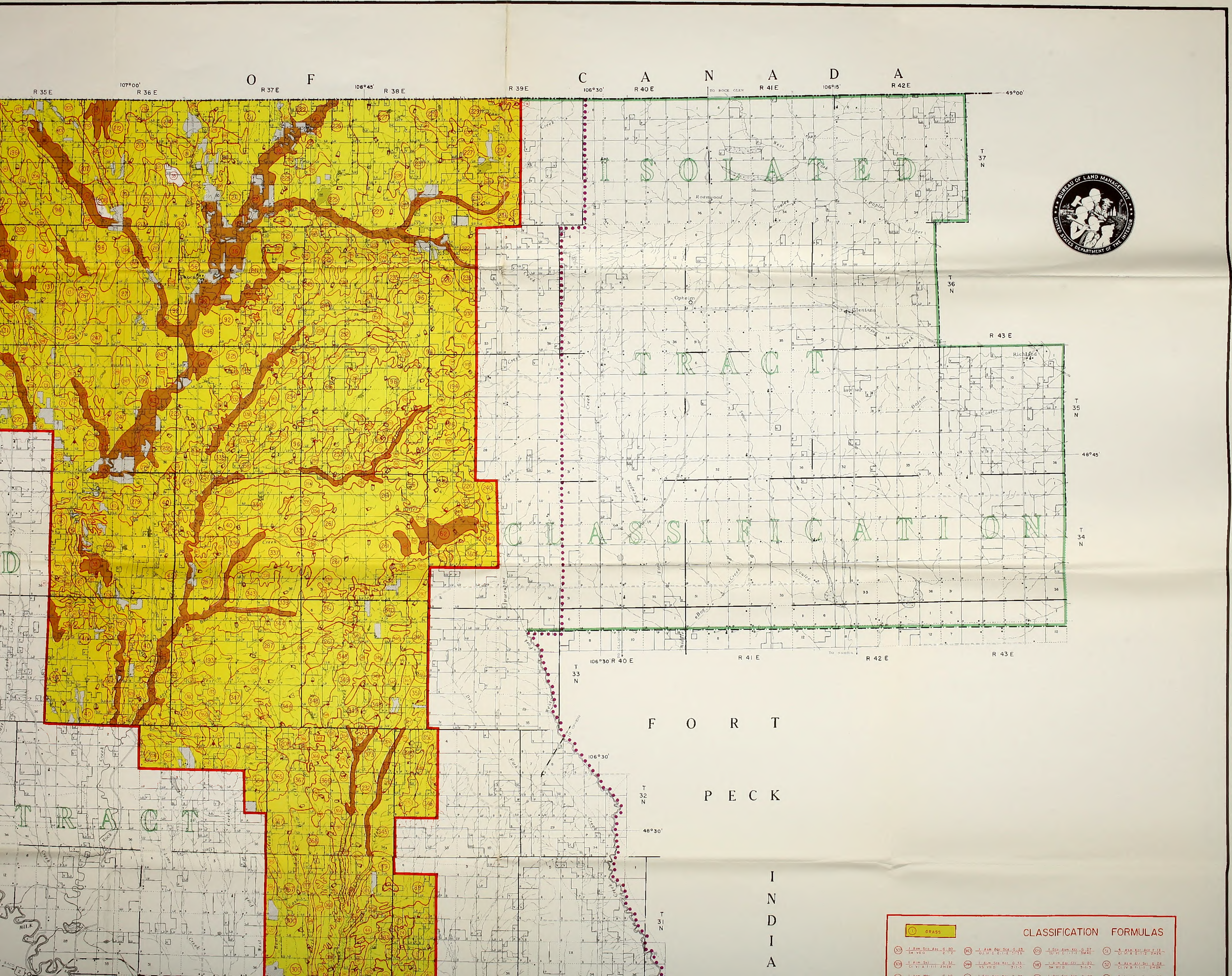
O F C A N A D A
R 35 E
107°00'
R 36 E
R 37 E
106°45'
R 38 E
R 39 E
106°30'
R 40 E
TO ROCK GLEN
R 41 E
106°15'
R 42 E
49°00'
T 37 N
T 36 N
R 43 E
T 35 N
48°45'
T 34 N
ISOLATED TRACT CLASSIFICATION
TRACT
Roanwood
Opheim
Glentana
Richland
West Fork Poplar River
Coulee
Snow Creek
Dolson Coulee
Porcupine Creek
Bog Creek
Middle Fork
106°30' R 40 E
R 41 E
TO NASHUA
R 42 E
R 43 E
T 33 N
T 32 N
T 31 N
106°30'
48°30'
FORT PECK INDIA
MILK
BUREAU OF LAND MANAGEMENT
UNITED STATES DEPARTMENT OF THE INTERIOR
CLASSIFICATION FORMULAS
1 GRASS
307 1 Asm Sco Asc G 20 / Sw VII D 2-1-2
343 1 Asm Bgr Sco G 23 / OU VI C 2-1-2 3F 3G
379 1 Sco Asm Kcr G 27 / OU VI C 1-1-1 3M4G
51 4 Asm Kcr Aco F 18 / Cl VI A 2-1-2 2H2K
308 1 Asm Svl G 32 / Cl VI A 1-1-1 2H2K
344 1 Asm Sco Kcr G 13 / VS VII D 3-1-3
380 1 Asm Bgr Cli G 20 / Sw VII D 3-1-3
52 4 Asm Alf Sri G 28 / Cl IV B 1-1-1 2H2K

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
AREA 3

MILK RIVER AREA MAP

MONTANA

SHOWING

VEGETATION, RANGE CONDITION, RECOMMENDED STOCKING RATE
RANGE SITE AND LAND USE CAPABILITY
AND POTENTIAL IMPROVEMENT SITES

SHEET 2 OF 5

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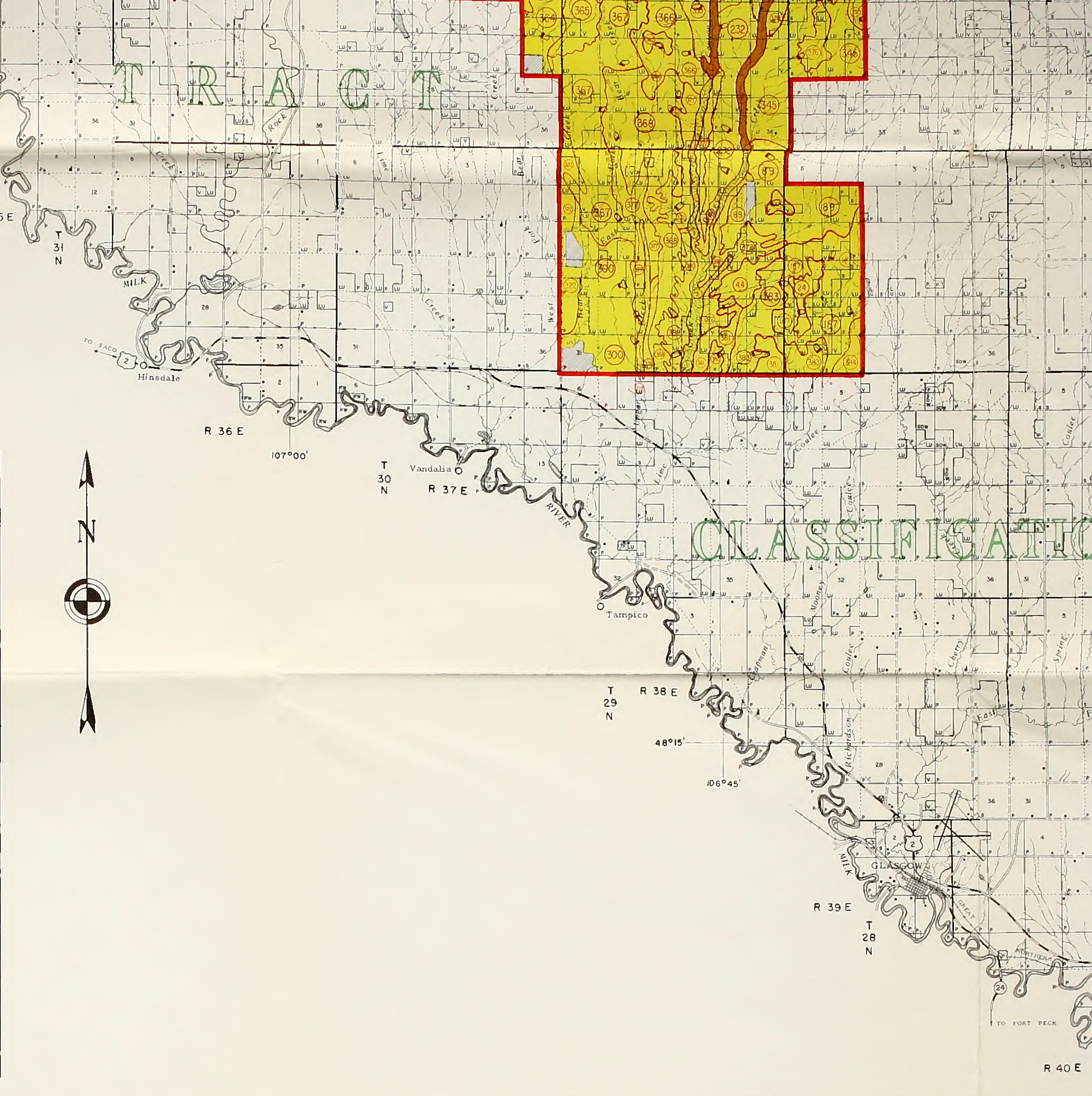
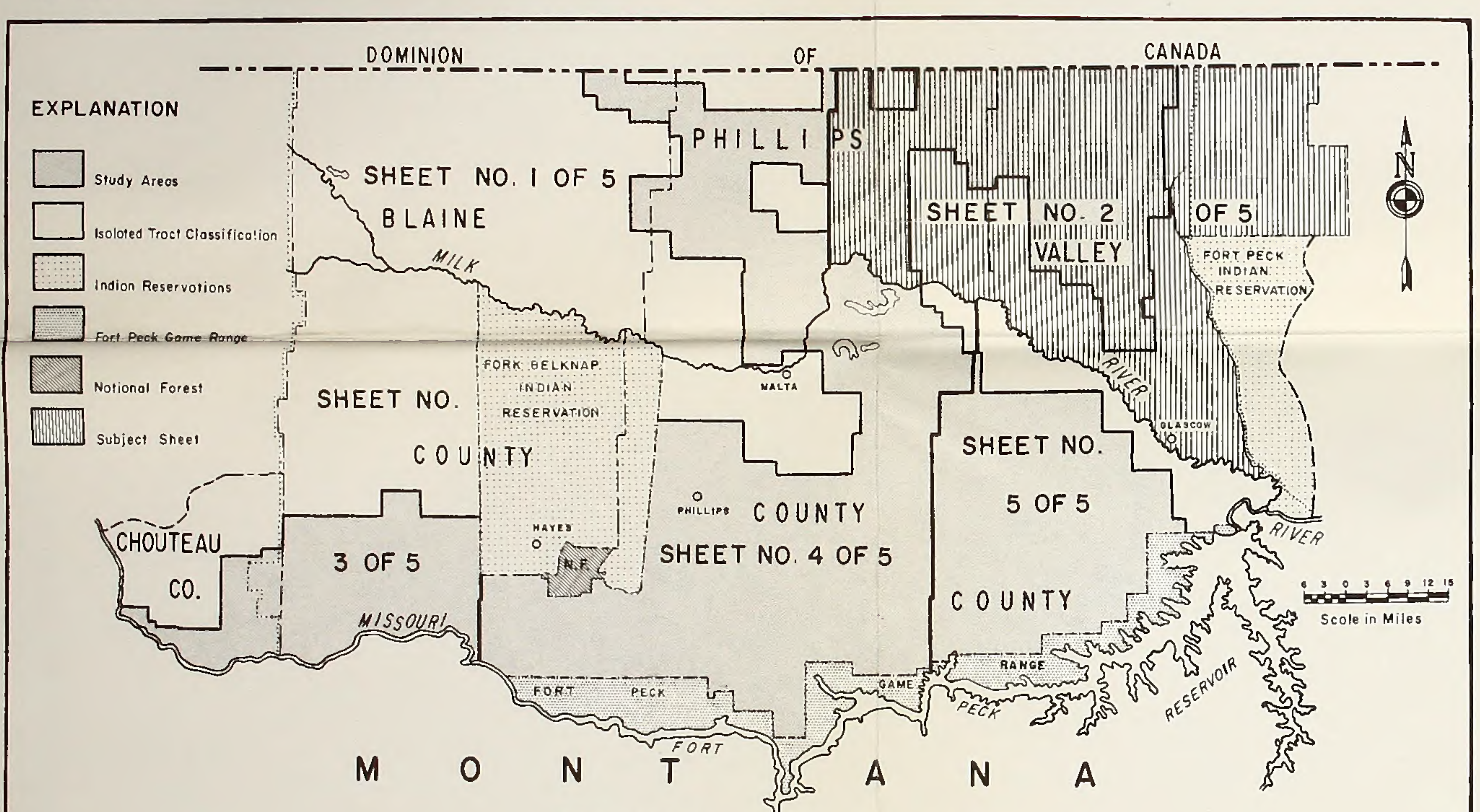
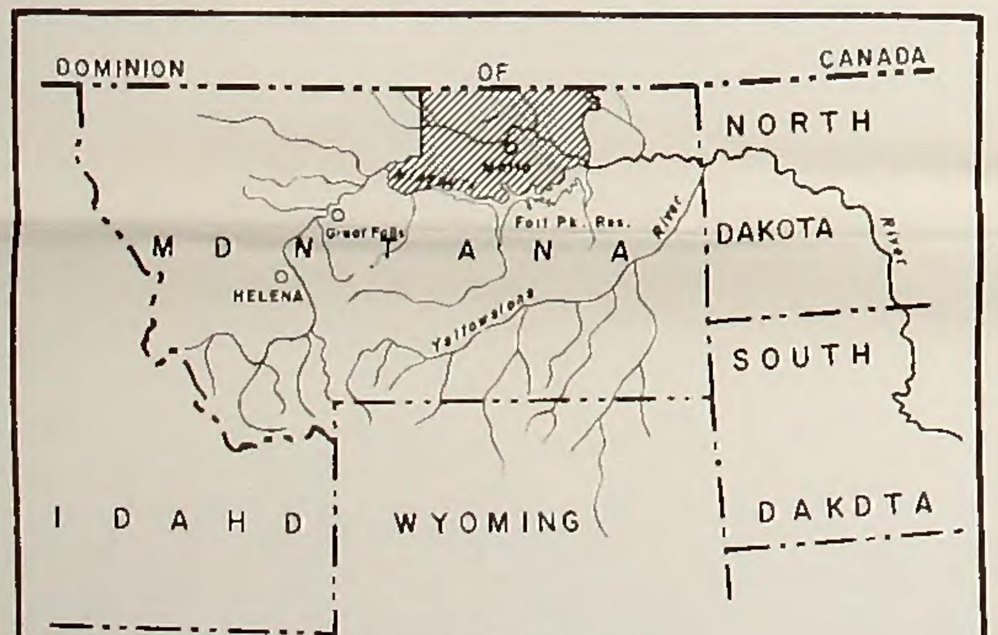
IN BACK OF BOUND VOLUME

0 1 2 3 4 5
Scale in Miles





INSET MAP OF MILK RIVER AREA
KEY TO 5 SHEETS



LOCATION MAP

LANDOWNERSHIP DESIGNATION

LANDOWNERSHIP STATUS

V	PUBLIC DOMAIN	MP	MILITARY PURCHASE
SDW	PUBLIC DOMAIN (Stock Driveway)	IA	INDIAN TRUST ALLOTMENT
S	STATE	WR	WILDLIFE REFUGE
PWR	PUBLIC WATER RESERVE	V-GR	PUBLIC DOMAIN - GAME RANGE
RW	RECLAMATION WITHDRAWAL	PSW	POWERSITE WITHDRAWAL
P	PRIVATE	RW-PS	RECLAMATION WITHDRAWAL - POWERSITE WITHDRAWAL
PS	POWERSITE WITHDRAWAL	LU	LAND UTILIZATION Project - Federal land acquired under Title III of the Bankhead Jones Act of 1937
MW	MILITARY WITHDRAWAL		

LEGEND

HYDROGRAPHIC FEATURES
- River
- Lake
- Perennial stream
- Intermittent stream
- Canal
- Dam
- Intermittent lake
- Contour Furrow
- FORT PECK RESERVOIR
- Well, water
- Artesian well
- Spring
- Spring, Improved
- Dike

HYPSOGRAPHIC FEATURES
- Depression contours
- Prominent peak
- Bluffs or cliffs (barrier to livestock)

CULTURE
- Windmill
- Well, oil or gas
- Oil tanks
- Corral
- Open pit mine or quarry
- Bridge
- Airport
- Cemetery

CULTURE
- Dwelling, Occupied
- Church
- School
- Ranger Station
- Post Office
- Pipeline
- Telephone or Telegraph line
- Power Transmission line
- Fence
- Cropland
- Water Spreader
- Marsh or Swamp
- Found Corner

ROADS
- U.S. Highway (hard surface)
- State Highway (hard surface)
- State Highway (Improved dirt road)
- Improved dirt road
- Unimproved dirt road
- Trail, jeep road
- Railroad

BOUNDARIES
- National
- State
- County
- National Forest, Indian Reservation
- Fort Peck Game Range

- Study Area Boundary Line (Missouri River Basin Studies, Bureau of Land Management)
- Formula Area Boundary Line
- Isolated Tract Classification Boundary Line
- Boundary of Grazing District Area

POTENTIAL IMPROVEMENT SITES

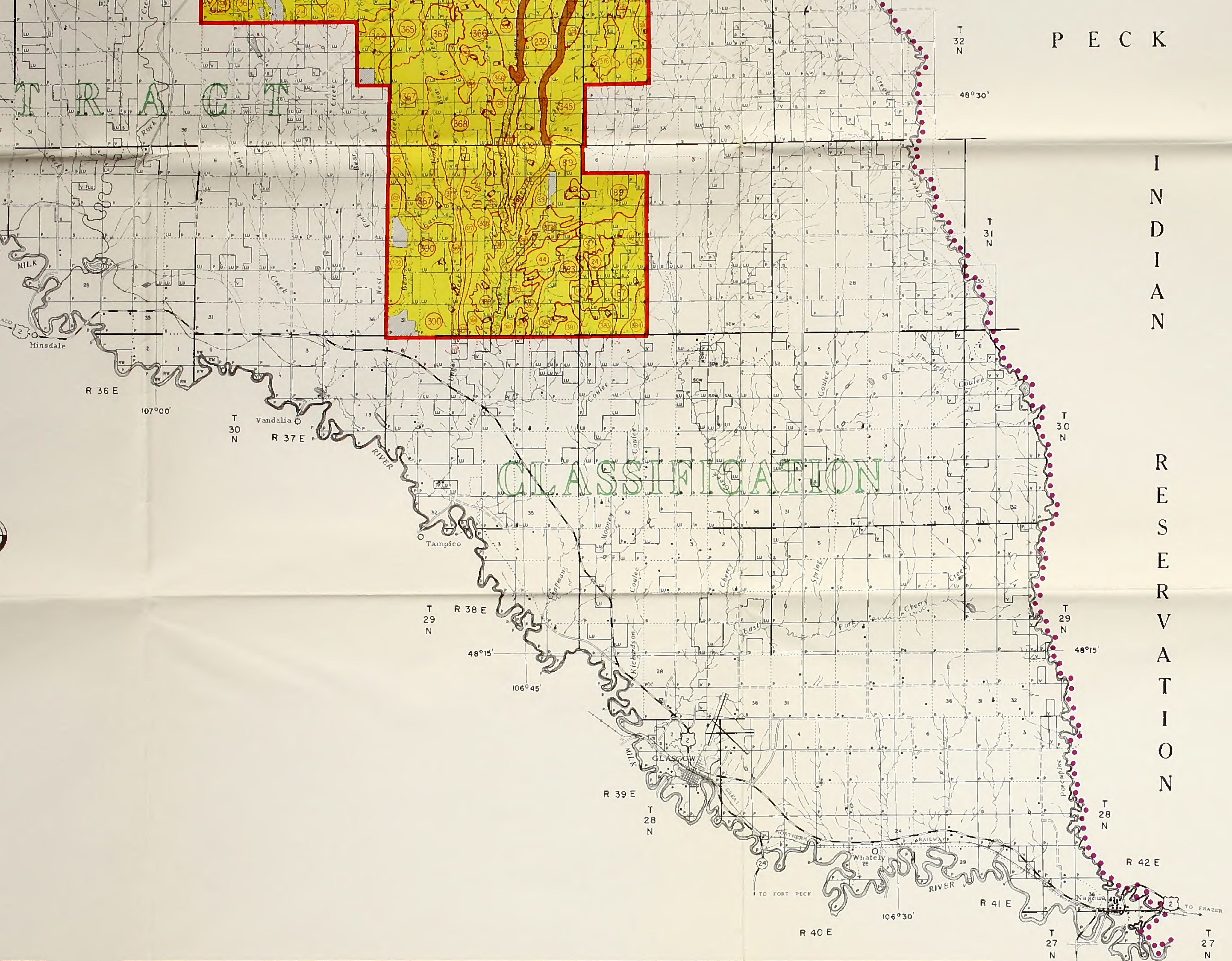
- Reservoir
- Diversion Dam
- Well and Windmill
- Water Spreading Dikes

CLASSIFICAT

① GRASS

㉓ I Sco Bgr Aim G .28 OU IV B 1-1-1 3M4G	(96) I Aim Bgr Kcr G .26 OU VI C 2-1-1 3F3C	(187) I Bgr Sco Asm G .25 OU VI C 2-1-1 3M4G	(207) I Sco Kcr Asm G .27 OU VI C 2-1-1 2M4G	(227) I Sco Aim Kcr G .24 OU VI C 3-1-2 3F3C	(247) I Bgr Sco Kcr G .27 OU VI C 2-1-1 3M4G	(267) I Aim Kcr Pie Sw VI C 2-1-2
㉔ I Sco Asm Bgr C .30 OU IV B 1-1-1 3M4C	(104) I Bgr Asm Sco G .27 OU VI C 2-1-1 3M4G	(188) I Asm Bgr Kcr C .20 Sw VI C 2-1-1 4M4G	(208) I Bgr Sco Kcr G .27 OU IV B 1-1-1 2M4C	(228) I Acr Aim Sco C .32 OU VI B 2-1-1 3F3G	(248) I Aim Kcr JUP G .14 VS VII D 2-1-3	(268) I Kcr Aim Bgr Sw VII C
㉕ I Sco Aim Bgr C .33 OU VI C 1-1-1 3M4G	(131) I Bgr Sco Kcr C .26 OU VI C 2-1-1 3M4G	(189) I Bgr Kcr Wdr C .13 TB VII D 3-1-3	(209) I Aim Pie Svi C .33 Ld IV A 1-1-1 2M4T	(229) I Aim Svi Kcr C .20 Sw VII D 3-1-2 4H2K	(249) I Aim Kcr JUP C .11 VS VII D 3-1-2 5H2K	(269) I Acr OU IV B 1-1-1
㉗ I Bgr Sco Asm C .27 OU IV B 1-1-1 3M4G	(138) I Sco Bgr Asm C .30 OU IV B 1-1-1 2M4C	(190) I Bgr Aim Sco G .18 Sw VI B 2-1-1 4F3G	(210) I Asm Kcr Sco G .29 OU VI C 2-1-1 3M4G	(230) I Asm Sco Bgr G .25 Sy VII D 2-1-1 3F5F	(250) I Asm Kcr Wdr G .09 Sh VII D 2-1-3	(270) I Sco Bgr Asm OU VI C 2-1-1
㉟ I Dst Asm Sco C .35 SL IV A 1-1-1 1M4T	(149) I Sco Bgr Asm C .26 OU IV B 1-1-1 2M4C	(191) I Asm Sco Kcr G .29 OU VI B 2-1-1 3M4C	(211) I Bgr Sco Aim C .26 OU VI C 2-1-1 3F3G	(231) I Aim Sco Kcr G .26 OU VI B 3-1-1 2F3G	(251) I Asm Kcr Pie G .14 VS VII D 2-1-3	(271) I Kcr Psc Asm Sw VI C 2-1-2
㊱ I Bgr Aim Sco F .25 OU VI C 1-1-1 4M4G	(152) I Bgr Sco Asm G .25 OU IV B 1-1-1 2M4G	(192) I Aim Kcr Bgr C .20 Sw VI C 2-1-1 3F3C	(212) I Asm Kcr Sco G .25 OU VI C 2-1-1 3M4G	(232) I Sco Asm Kcr G .28 OU VI C 2-1-1 3M4G	(252) I Asm Pie Bgr G .28 OU VI C 2-1-1 3F3G	(272) I Sco Bgr Aim OU IV B 2-1-1
㊳ I Bgr Sco Mcu G .20 Sw VII D 2-1-1	(155) I Bgr Aim Sco C .25 OU VI C 1-1-1 3M4G	(193) I Sco Bgr Asm G .28 OU VI C 2-1-1 2M4G	(213) I Kcr Aim Cli G .20 Sw VI C 2-1-2 4F3G	(233) I Asm Pse Bgr G .27 Cl IV B 2-1-1 2H2K	(253) I Aim JUP Wdr G .09 Sh VII D 3-1-2	(273) I Mcu Asm Sco TB VII D
㊴ I Bgr Aim Dst G .28 OU VI B 2-1-1 1M4T	(160) I Aim Arc Sco G .16 TB VII D 2-1-2	(194) I Asm Pie Kcr G .18 Sw VI C 2-1-2 4H2K	(214) I Aim Sco Bgr G .28 OU VI C 1-1-1 2M4C	(234) I Asm Bgr Sco G .22 OU VI C 3-1-1 3F3C	(254) I Aim Kcr OPU G .20 Sw VI C 3-1-1 4H2K	(274) I Kcr Asm Bgr Sw VI C 2-1-2
㊵ I Bgr Asm Sco G .28 OU VI C 1-1-1 3M4G	(167) I Bgr Aim Sco G .26 OU VI C 2-1-1 3M4C	(195) I Asm Pie Kcr G .10 VS VII D 3-1-3	(215) I Aim Pie Wds C .30 Cl IV B 1-1-2 2H2K	(235) I Aim Kcr Bgr C .26 OU VI C 2-1-1 3M4G	(255) I Aim Clo Wds G .09 Sh VII D 3-1-3	(275) I Bgr Sco Asm OU VI C 2-1-1
㊶ I Bgr Mcu Sco C .18 Sw VII D 2-1-1	(176) I Asm Bgr Sco G .33 Cl IV A 1-1-1 1H2T	(196) I Aim Kcr Sco G .21 Sw VI C 2-1-2 4F3C	(216) I Kcr Cfl Aim C .18 Sw VI C 3-1-2 4F3C	(236) I Asm Kcr Bgr C .28 OU VI C 1-1-1 3M4C	(256) I Aim Kcr Bgr G .18 Sw VI C 2-1-2 4F3C	(276) I Cfl Sco Kcr Sw VI C 2-1-2
㊷ I Sco Aim Bgr G .29 OU VI C 1-1-1 3M4C	(177) I Asm Hju G .40 Ld IV A 1-1-1 1F3T	(197) I Sco Cli Kcr G .22 TB VII D 2-1-2	(217) I Kcr Cli Aim G .23 Sw VI C 2-1-1 4F3G	(237) I Aim Pie Wds G .14 VS VII C 2-1-3	(257) I Aim Kcr Ali G .20 Sw VI B 2-1-2 4H2K	(277) I Bgr Alr Wds OU IV B 1-1-1
㊹ I Bgr Asm Sco G .27 OU VI C 1-1-1 3M4G	(178) I Aim Bgr Cli G .27 OU IV B 1-1-1 2M4G	(198) I Acr G .40 OU IV B 1-1-1 2M4C	(218) I Aim Svi Cfl C .14 VS VII D 3-1-2	(238) I Aim Kcr Wdr G .10 Sh VII D 3-1-2	(258) I Aim Kcr Ali G .17 Sw VI B 2-1-2 4H2K	(278) I Cli Kcr Sco Sw VI C 2-1-2
㊻ I Bgr Sco Aim F .25 OU VI C 1-1-1 4M4C	(179) I Sco Asm Bgr G .31 OU VI C 1-1-1 2M4G	(199) I Aim Bgr Kcr C .20 Sw VI C 2-1-2 4F3C	(219) I Kcr Cli Aim C .19 Sw VI C 2-1-2 4F3C	(239) I Asm Kcr Ali C .18 Sw VI C 3-1-2 4H2K	(259) I Asm OPU Aco G .10 SL VI B 3-1-1 3H2K	(279) I Asm Kcr Wdr VS VII D
㊼ I Bgr Aim Sco C .27 OU VI C 1-1-1 4M4C	(180) I Acr Ali Bgr G .29 OU IV B 2-1-2 2M4G	(200) I Bgr Sco Asm G .25 OU VI C 2-1-1 3F3G	(220) I Cli Kcr Svi C .18 Sw VI C 2-1-2 4F3C	(240) I Sco Asm Kcr G .27 OU VI C 2-1-1 3F3G	(260) I Aim Bgr Pie G .20 Sw VI B 2-1-1 4H2K	(280) I Aim Kcr Bgr Sw VI C 2-1-2
㊽ I Bgr Sco Aim G .26 OU IV B 1-1-1 3M4C	(181) I Asm Mcu Wdr G .15 TB VII D 2-1-2 4F3CK	(201) I Bgr Sco Kcr G .24 OU VI C 2-1-1 3M4C	(221) I Aim Svi Pie G .38 Ld IV A 1-1-2 1F3T	(241) I Aim Bgr Sco G .28 OU VI B 1-1-1 3M4G	(261) I Aim Clo JUP G .08 Sh VII D 4-1-3	(281) I Aim Kcr Wdr Sw VII D
㊾ I Sco Bgr Aim C .30 OU VI C 1-1-1 3M4C	(182) I Aco Asm Kcr C .28 OU VI C 1-1-1 3M4C	(202) I Cfl Aim Kcr G .08 Sh VII C 3-1-3	(222) I Bgr Sco Kcr C .26 OU VI C 2-1-1 3F3C	(242) I Asm Kcr Mcu G .14 VS VII D 2-1-3	(262) I Aim Kcr Psi G .10 Sh VII D 3-1-2	(282) I Bgr Kcr Asm Sw VII C
(56) I Kcr Asm Sco G .18 Sw VI C 2-1-1 4F3C	(183) I Asc Clo Wds F .06 Sh VII D 3-1-2 4H2K	(203) I Aim Pse Kcr G .16 Sw VI B 2-1-2 4H2K	(223) I Aim Kcr Cso G .12 VS VII C 3-1-2	(243) I Acr G .40 Cl IV B 1-1-1 2H2K	(263) I Bgr Asm Kcr G .24 OU VI C 2-1-1 3F3C	(283) I Sco Kcr Asm OU VI C 2-1-1
(79) I Sco Bgr Aim C .27 OU IV B 1-1-1 2M4G	(184) I Asm Cli Mcu G .17 Sw VII D 2-1-1 4M4G	(204) I Bgr Asm Kcr C .19 Sw VI C 2-1-2 4F3C	(224) I Bgr Kcr Asm G .23 OU VI C 2-1-2 3F3C	(244) I Aim Pie Bgr G .25 Cl VI B 2-1-1 3H2K	(264) I Cfl Asm Mcu G .15 VS VII C 3-1-3	(284) I Sco Aim Kcr OU VI C 1-1-1
(89) I Bgr Asm Kcr G .27 OU IV B 1-1-1 3M4G	(185) I Asm Bgr Ali C .27 OU VI C 2-1-1 2F3T	(205) I CHY Aim Svi G .10 Sh VII D 3-1-3	(225) I Asm Sco Kcr G .28 OU VI C 2-1-1 3F3G	(245) I Asm Kcr Svi G .20 Sw VI C 2-1-2 4H2K	(265) I Bgr Kcr Aim G .18 Sw VI C 2-1-2 3F3G	(285) I Arc Clo Wdr Sh VII D
(92) I Aim Bgr Sco G .28 OU IV B 1-1-1 2M4G	(186) I Auv Cfo Dsl G .06 Sh VII D 3-1-3	(206) I Cli Kcr Asm G .12 VS VII D 3-1-2	(226) I Asm Kcr Mcu G .14 VS VII D 2-1-2 5H2K	(246) I Bgr Kcr Acr F .25 OU IV B 1-1-1 2M4G	(266) I Cli Aim Wds C .15 VS VII D 3-1-3	(286) I Asm Bgr Kcr Sw VI C 3-1-1

Compiled and drafted by John L. Kovács - Area 3 - Denver, 1959.



CLASSIFICATION FORMULAS

1 GRASS

2 MEADOW

4 SAGEBRUSH

5 BROWSE-SHRUB

7 W WASTE

8 B BARREN

10 BROAD-LEAF TREES

14 GREASEWOOD

CLASSIFICATION FORMULAS

1 GRASS

EXPLANATION OF SYMBOLS IN FORMULA

I	Asm	Kcr	Atr	E	.16
OU	VI	B	2-1-3	2H	3K

PRINCIPAL SPECIES OF VEGETATION
See report Appendix B for plant names designated by these symbols

CONDITION CLASSIFICATION
- E Excellent (76-100% of climax species remaining)
- G Good (51-75% of climax species remaining)
- F Fair (26-50% of climax species remaining)
- P Poor (0-25% of climax species remaining)

RECOMMENDED STOCKING RATE
ANIMAL UNIT MONTHS PER ACRE

COLOR SEPARATIONS SHOWING RANGE TYPE DESIGNATIONS

1-	GRASS
2-	MEADOW
4-	SAGEBRUSH
5-	BROWSE-SHRUB
6-	CONIFER
7W-	WASTE
▨	TIMBER AND BRUSH
8-	BARREN
10	BROAD-LEAF TREES
▨	SALTBUSH
14	GREASEWOOD
20	ANNUAL WEEDS

SITE DESIGNATIONS

Bl	Badlands
Cl	Clay
Gr	Gravel
Ld	Lowland
OU	Ordinary Upland
Sc	Scabland
Sh	Shale
SL	Saline Lowland
SU	Saline Upland
Sw	Shallow
Sy	Sandy
TB	Thin Breaks
VS	Very Shallow

SLOPE DESCRIPTION

A	Nearly level	0-3%
B	Gently	4-15%
C	Moderately	16-30%
D	Strongly	31-45%
E	Steep	46-60%
F	Very steep	61% +

SOIL EROSION
Sheet - Wind - Gully
- 1 None to slight
- 2 Slight to moderate
- 3 Moderate to severe
- 4 Severe to critical
- 5 Critical to extreme

EFFECTIVE DEPTH

1	Very deep	60 inches or more
2	Deep	30-60 inches
3	Moderately deep	20-36 inches
4	Shallow	10-20 inches
5	Very shallow	less than 10 inches

PERMEABILITY
- 1 Very slow
- 2 Slow
- 3 Moderately slow
- 4 Moderate
- 5 Moderately rapid

TEXTURE OF TOPSOIL
- V Very heavy
- H Heavy
- F Medium heavy
- M Medium
- S Moderately light
- L Light

TYPE OF UNERLYING MATERIAL
- F Sandstone
- G Glacial material
- K Shale or slate
- T Old alluvium, terrace or outwash alluvial
- X Recent alluvium and recent outwash
- Y Clay

LAND USE CAPABILITY
- IV Limited or occasional cultivation; best for permanent hay or pasture
- V Range or woodland, farming only if irrigation water becomes available
- VI Range and woodland only
- VII Range and woodland with severe restriction
- VIII Watershed, wildlife and recreation

Denver, 1959.

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UNITED STATES
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BUREAU OF LAND MANAGEMENT
AREA 3

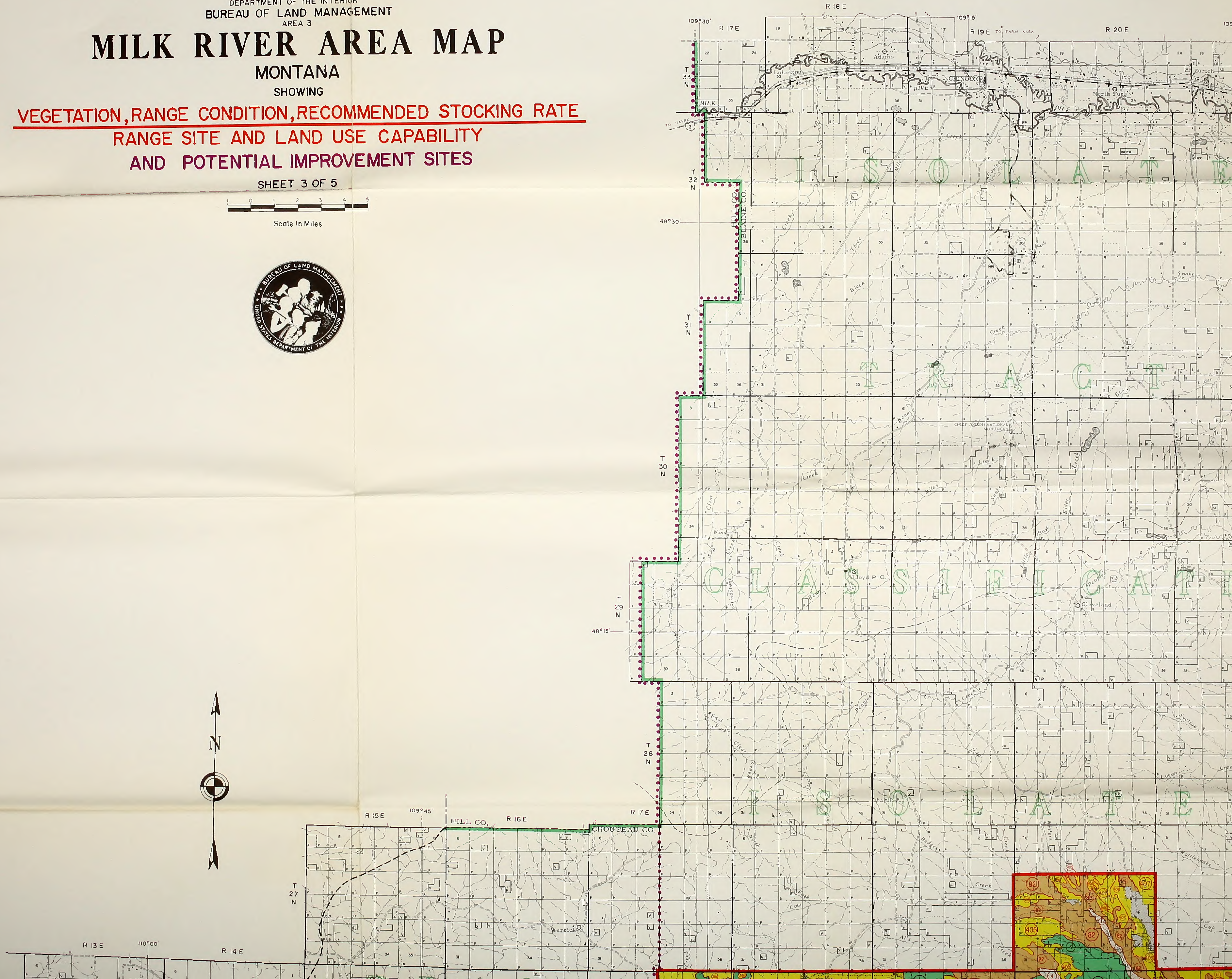
MILK RIVER AREA MAP

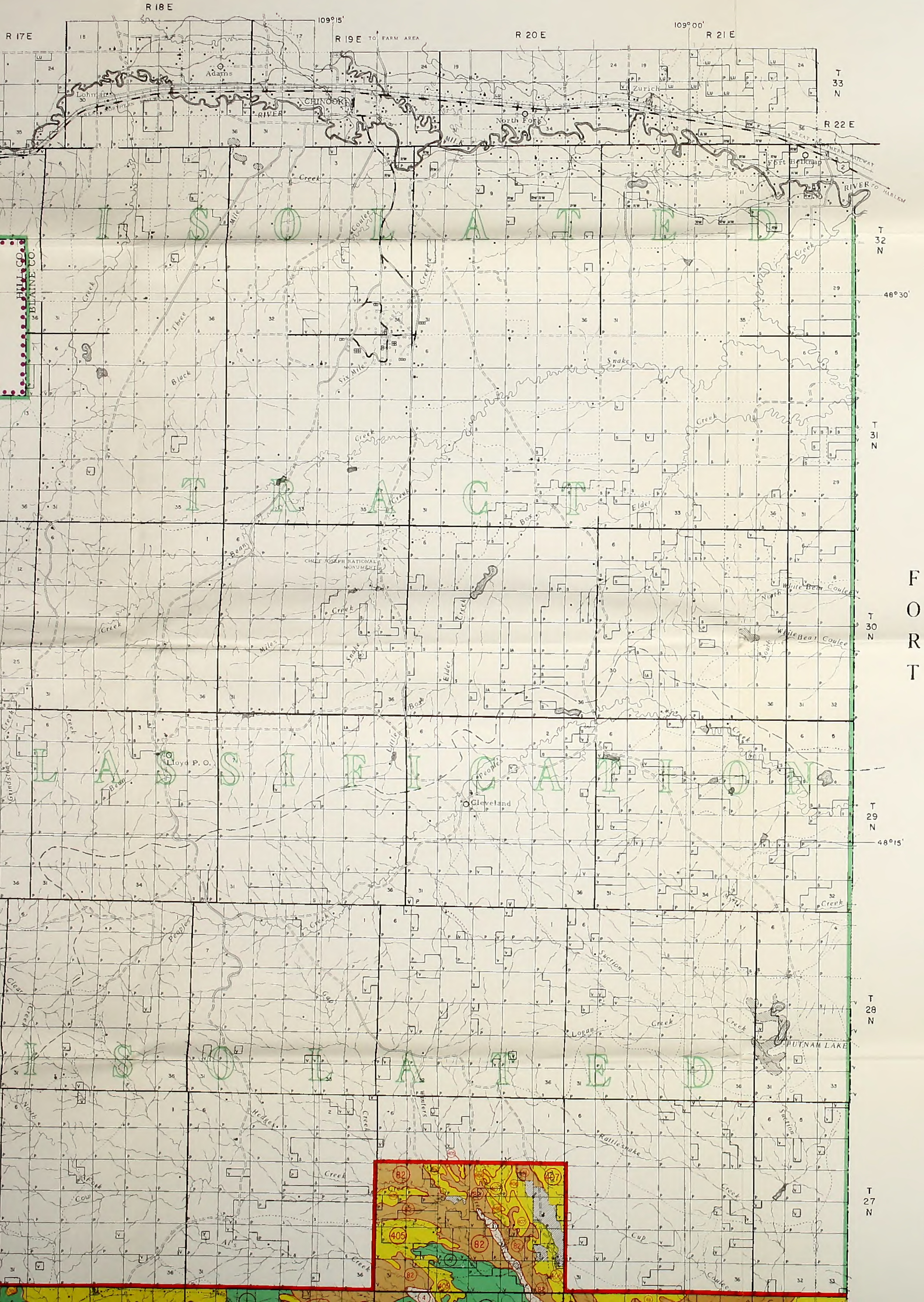
MONTANA

SHOWING

VEGETATION, RANGE CONDITION, RECOMMENDED STOCKING RATE
RANGE SITE AND LAND USE CAPABILITY
AND POTENTIAL IMPROVEMENT SITES

SHEET 3 OF 5





CLASSIFICATION FORMULAS

① GRASS

No.	Formula (upper)	Formula (lower)
37	1 Bgi Sco Asm F.25	OU IV B 1-1-1 3M4G
42	1 Sco Asm Bgi G.29	OU VI C 1-1-1 3M4G
155	1 Bgi Asm Sso G.25	OU VI C 1-1-1 3M4G
325	1 Asm Sei G.30	Cl IV B 1-1-1 2H2K
386	1 Sco Bgi Kcr G.23	OU VII D 1-1-2
387	1 Bgi Sco Asm F.18	OU VI C 2-1-1 3M4F
388	1 Bgi Sco Mcu G.15	Sw VII D 2-1-2
389	1 Bgi Asm Kcr G.32	OU VI C 1-1-1 2M4G
390	1 Bgi Asm Sco G.25	Cl VI C 2-1-1 2H2K
391	1 Sso Bgi Asm G.15	Sw VII D 3-1-2
392	1 Bgi Asm Mcu G.18	Sw VII D 2-1-1 4M4G
393	1 Sco Bgi Asm G.26	OU VI C 1-1-1 2M4G
394	1 Sco Bgi Asm F.26	OU VI D 2-1-1 3S5F
395	1 Bgi Asm Pse G.23	OU VII D 2-1-1 3S5F
396	1 Bgi Asm Ali G.10	TB VII D 2-1-2
397	1 Sso Cli Asp G.18	Sw VII D 1-1-1
398	1 Bgi Asm Kcr G.23	OU VI C 2-1-1 3M4G
399	1 Sso Cli Asp G.20	Sw VII D 2-1-1
400	1 Sco Bgi Cli G.20	Sw VII D 2-1-1
401	1 Sso Bgi Mcu G.28	OU VI C 1-1-1 3M4G
402	1 Bgi Asm Sco G.23	OU VI C 2-1-1 3M4FK
403	1 Bgi Sco Pss G.23	OU VI C 2-1-1 3M4G
404	1 Bgi Sco Cli G.24	OU VI C 1-1-1 3M4G
405	1 Bgi Asm Sco F.25	OU IV B 2-1-1 2M4G
406	1 Asm Sco Bgi G.33	OU IV B 2-1-1 2M4G
407	1 Asm Bgi Sco G.25	OU VI C 2-1-2 3M4G
408	1 Bgi Sco Cli G.26	OU VI C 2-1-2 3M4G
409	1 Bgi Sco Pse G.23	OU VI C 1-1-1 3M4G
410	1 Bgi Sco Asm F.25	OU VI C 2-1-1 3M4G
411	1 Bgi Sco Cli G.26	OU IV B 1-1-1 2M4G
412	1 Bgi Sco Cli G.26	OU VI C 2-1-1 2M4G
413	1 Asm Kcr Psc G.24	Sw VII D 3-1-1
414	1 Sco Bgi Asm G.22	OU VI C 2-1-1 3M4G
415	1 Bgi Sco Cli F.16	Sw VII D 2-1-2
416	1 Sco Bgi Asm G.25	OU VI C 2-1-2 2M4G
417	1 Sco Bgi Asm F.20	OU IV B 2-1-1 3M4G
418	1 Asm Sco Ali F.12	TB VII D 3-1-2
419	1 Asm Sso Bgi G.18	TB VII D 3-1-2
420	1 Asm Bgi Sco F.20	OU IV B 2-1-1 2F3G
421	1 Sso Bgi Asm G.30	OU VI C 2-1-1 2M4G
422	1 Sco Bgi Asm G.30	OU VI C 2-1-1 2M4F
423	1 Asm Sps CHE P.06	Cl IV A 2-1-1 2F3T
424	1 Bgi Asm Aso P.12	OU IV B 2-1-1 3F3T
425	1 Bgi Sco Asm F.20	OU VI C 2-1-2 1S5T
426	1 Bgi Sso Mcu G.23	OU VI C 2-1-1 3M4G
427	1 Asm Dst Ali G.14	TB VII D 2-1-2
428	1 Bgi Asm Sco F.17	OU IV B 2-1-1 3M3G
429	1 Sco Bgi Asm F.16	OU VI B 2-1-3 2M4T
430	1 Bgi Sco Cli G.23	OU VII D 2-1-2
431	1 Mcu Bgi Sco G.14	TB VII E 2-1-2
432	1 Bgi Asm Sco G.16	OU IV B 2-1-2 1S5T
433	1 Asm Bgi Sso F.16	OU IV B 2-1-1 2M4T
434	1 Aci P.18	OU IV B 2-1-2 2M4T
435	1 Mcu Bgi Sso G.17	TB VII E 2-1-2
436	1 Asm Bgi Mcu G.18	Sw VII D 2-1-1
437	1 Asm Bgi Sco G.30	OU VI C 1-1-1 3M4F
438	1 Bgi Asm Sco G.22	OU VI C 1-1-1 2M4G

④ SAGEBRUSH

No.	Formula (upper)	Formula (lower)
64	4 Bgi Asm Ali G.23	OU VI C 2-1-1 3F3G
65	4 Bgi Asm Ali G.18	TB VII D 3-1-2
66	4 Svi Asm Ali G.25	Cl VI C 3-1-1 2H2K
67	4 Asm Ali Pss F.18	TB VII D 3-1-2
68	4 Bgi Asm Ali F.18	OU VI C 1-1-1 2F3G
69	4 Asm Ali Pss G.15	TB VII D 2-1-2
70	4 Bgi Asp Asm F.36	OU VI C 1-1-1 2M4G
71	4 Bgi Asm Ali F.18	OU VI C 1-1-1 2M4G
72	4 Asm Ali Pse G.15	Sw VI C 2-1-1 4F3G
73	4 Ali Asm Psc G.13	TB VII D 2-1-2
74	4 Asm Ali Asp G.19	TB VII D 2-1-1
75	4 Asm Bgi Aco F.15	Cl VI C 2-1-2 1H2T
76	4 Asm Ali Mcu G.16	Sw VII D 2-1-1
77	4 Asm Ali Pse F.15	TB VII D 3-1-2 3H2K
78	4 Asm Ali Wdi F.15	TB VII D 2-1-2 3H2T
79	4 Asm Ali Wds F.10	TB VII D 2-1-2
80	4 Asm Mcu Ali G.15	TB VII D 2-1-2
81	4 Asm Ali Mcu G.08	TB VII D 2-1-2
82	4 Ali Asm Fbi G.12	TB VII D 3-1-3
83	4 Asm Bgi Aco F.25	OU IV B 3-1-1 2M4G
84	4 Asm Ali Alp F.19	OU VI C 2-1-1 3F3G
85	4 Asm Bgi Ali F.19	Cl VI C 2-1-1 2H2K
86	4 Asm Ali Pss G.16	TB VII D 2-1-3
87	4 Bgi Ali Sco F.15	Cl VI C 2-1-3 2H2K
88	4 Ali Asm Alp G.15	TB VII D 2-1-3
89	4 Asm Ali Pse G.19	TB VII D 2-1-3
90	4 Ali Asm Asp G.17	TB VII D 2-1-1
91	4 Asm Pse Cli G.17	TB VII D 2-1-3
92	4 Ali Wdi Asm G.03	Bl VII E 4-1-4 5H2K
93	4 Asm Ali Kcr G.12	VS VII D 3-1-2
94	4 Asm Ali Sel G.12	VS VII D 3-1-1
95	4 Sco Bgi Ali G.21	OU VI B 2-1-1 3M4G
96	4 Asm Ali Svi G.10	VS VII D 3-1-3
97	4 Asm Ali Pss F.16	Cl VI B 2-1-2 2H2K
98	4 Asm Ali Pss F.16	Cl VI C 3-1-2 2H2K
99	4 Ali Asm Wds G.06	Bl VII E 4-1-3
100	4 Bgi Wds Asm G.03	Bl VII E 4-1-4
101	4 Asm Bgi Ali G.14	TB VII D 3-1-2
102	4 Bgi Sco Ali G.10	TB VII E 2-1-2
103	4 Asm Aco Bgi G.30	Cl IV B 2-1-1 1H2T
104	4 Asm Aco Bgi G.30	TB VII E 4-1-4
105	4 Sco Ssi Ali G.20	TB VII E 2-1-2
106	4 Bgi Ali Asp G.07	Bl VII E 2-1-3
107	4 Ali Bgi Asm F.12	Cl IV B 3-1-1 1H2T
108	4 Asm Bgi Ali G.20	Cl IV C 2-1-1 2M2T
109	4 Mcu Bgi Sco G.18	TB VII D 2-1-2
110	4 Asm Bgi Aco F.15	Cl VI C 2-1-3 2H2T
111	4 Mcu Bgi Ali G.10	TB VII D 3-1-2
112	4 Sco Asp Ali G.15	VS VII F 2-1-3
113	4 Asm Ali Asp F.19	OU VI C 1-1-1 3F3G
114	4 Bgi Ali Sco F.15	Cl VI C 2-1-3 2H2T
115	4 Asm Ali Asp G.19	OU VI C 2-1-1 3F3G
116	4 Asm Ali Pss G.15	TB VII D 3-1-2
117	4 Ali Asm Asp G.16	TB VII D 2-1-3
118	4 Asm Ali Pss G.15	Sw VII D 2-1-2
119	4 Asm Pss Cli G.19	Sw VII C 2-1-1

⑤ BROWSE-SHRUB

No.	Formula (upper)	Formula (lower)
4	5 Asm SLX ROS G.40	Ld IV B 1-1-1 1M4T

⑥ CONIFER

No.	Formula (upper)	Formula (lower)
1	6 Sso Asc Alp G.16	TB VII D 1-1-2
2	6 Alp Ksi Ali G.10	VS VII E 2-1-2
3	6 Sso Asc Asp G.16	TB VII D 2-1-3
4	6 Asp Kcr Ali G.10	VS VII E 3-1-3
5	6 Asp Kcr Ppo G.10	VS VII E 3-1-3
6	6 Asp Ali Asm G.14	TB VII D 3-1-3
7	6 Alp Asm Bgi G.10	Sh VII E 3-1-3
8	6 Asp Asm Ppo G.04	Bl VII E 4-1-3

7 W WASTE

No.	Formula (upper)	Formula (lower)
4	7 W	Bl VIII E 4-1-3
5	7 W	Bl VIII E 3-2-3
6	7 W	Bl VIII F 4-1-3

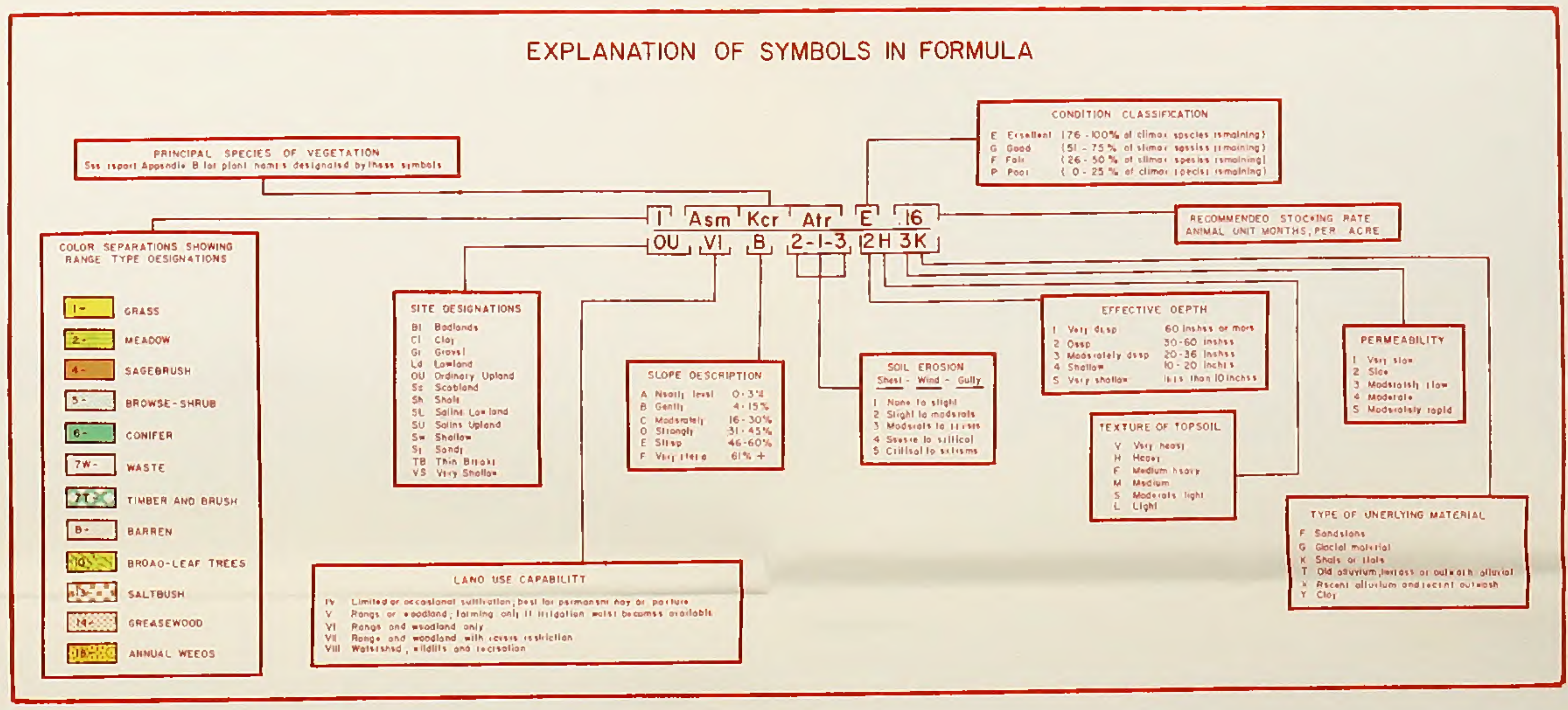
⑩ BROAD-LEAF TREES

No.	Formula (upper)	Formula (lower)
4	10 POP ROS Asm G.15	Ld VI A 2-1-1 3H2K
5	10 POP ROS Asm G.15	Ld VI A 2-1-1 3H3X

⑭ GREASEWOOD

No.	Formula (upper)	Formula (lower)
3	14 Asm Aco Bgi F.22	SL VI C 1-1-3 2H2K
4	14 Asm Sss Bgi G.22	SL VI C 1-1-3 2H2K

EXPLANATION OF SYMBOLS IN FORMULA


$$\frac{\text{1 Asm Kcr Atr E .16}}{\text{OU VI B 2-1-3 2H 3K}}$$

PRINCIPAL SPECIES OF VEGETATION
See report Appendix B for plant names designated by these symbols

CONDITION CLASSIFICATION

E	Excellent	(76 - 100% of climax species remaining)
G	Good	(51 - 75% of climax species remaining)
F	Fair	(26 - 50% of climax species remaining)
P	Poor	(0 - 25% of climax species remaining)

RECOMMENDED STOCKING RATE
ANIMAL UNIT MONTHS, PER ACRE

COLOR SEPARATIONS SHOWING RANGE TYPE DESIGNATIONS

1-	GRASS
2-	MEADOW
4-	SAGEBRUSH
5-	BROWSE-SHRUB
6-	CONIFER
7W-	WASTE
7T-	TIMBER AND BRUSH
8-	BARREN
10-	BROAD-LEAF TREES
13-	SALTBUSH
14-	GREASEWOOD
18-	ANNUAL WEEDS

SITE DESIGNATIONS

Bl	Badlands
Cl	Clay
Gl	Gravel
Ld	Lowland
OU	Ordinary Upland
Sc	Scabland
Sh	Shale
SL	Saline Lowland
SU	Saline Upland
Sw	Shallow
Sy	Sandy
TB	Thin Breaks
VS	Very Shallow

SLOPE DESCRIPTION

A	Nearly level	0 - 3%
B	Gently	4 - 15%
C	Moderately	16 - 30%
D	Strongly	31 - 45%
E	Steep	46 - 60%
F	Very steep	61% +

SOIL EROSION
Sheet - Wind - Gully

1 None to slight
2 Slight to moderate
3 Moderate to severe
4 Severe to critical
5 Critical to extreme

EFFECTIVE DEPTH

1	Very deep	60 inches or more
2	Deep	30 - 60 inches
3	Moderately deep	20 - 36 inches
4	Shallow	10 - 20 inches
5	Very shallow	less than 10 inches

TEXTURE OF TOPSOIL

V	Very heavy
H	Heavy
F	Medium heavy
M	Medium
S	Moderately light
L	Light

PERMEABILITY

1	Very slow
2	Slow
3	Moderately slow
4	Moderate
5	Moderately rapid

TYPE OF UNERLYING MATERIAL

F	Sandstone
G	Glacial material
K	Shale or slate
T	Old alluvium, terrace or outwash alluvial
X	Recent alluvium and recent outwash
Y	Clay

LAND USE CAPABILITY

IV	Limited or occasional cultivation; best for permanent hay or pasture
V	Range or woodland; farming only if irrigation water becomes available
VI	Range and woodland only
VII	Range and woodland with severe restriction
VIII	Watershed, wildlife and recreation

R 15 E
HILL CO.
R 16 E
R 17 E
CHOUTEAU CO.
T 27 N
R 13 E
110°00'
R 14 E
T 26 N
48°00'
TRACT
CLASSIFICATION
Warrick
Eagleton
T 25 N
T 24 N
R 13 E
110°00'
R 14 E
47°45'
T 23 N
MISSOURI
RIVER
R 15 E
109°45'
R 16 E
CHOUTEAU CO.
BLAINE CO.
R 17 E
109°30'
R 18 E
R 19 E
109°15'
R 20 E
R 21 E
109°00'
T 23 N
47°45'
LEGEND
HYDROGRAPHIC FEATURES
River
Lake
Perennial stream
Intermittent stream
Canal
Dam
Intermittent lake
Contour Furrow
FORT PECK RESERVOIR
Well, water
Artesian well
Spring
Spring, Improved
Dike
HYPSOGRAPHIC FEATURES
Depression contours
Prominent peak
Bluffs or cliffs (barrier to livestock)
CULTURE
Windmill
Well, oil or gas
Oil tanks
Corral
Open pit mine or quarry
Bridge
Airport
Cemetery
CULTURE
Dwelling, Occupied
Church
School
Ranger Station
Post Office
Pipeline
Telephone or Telegraph line
Power Transmission line
Fence
Cropland
Water Spreader
Marsh or Swamp
Found Corner
ROADS
U.S. State Highway (hard surface)
State Highway (hard surface)
State Highway (Improved dirt road)
Improved dirt road
Unimproved dirt road
Trail, jeep road
Railroad
BOUNDARIES
National
State
County
National Forest, Indian Reservation
Fort Peck Game Range
LANDOWNERSHIP DESIGNATION
LANDOWNERSHIP STATUS
V PUBLIC DOMAIN
SDW PUBLIC DOMAIN (Stock Driveway)
S STATE
PWR PUBLIC WATER RESERVE
RW RECLAMATION WITHDRAWAL
P PRIVATE
PS POWERSITE WITHDRAWAL
MW MILITARY WITHDRAWAL
MP MILITARY PURCHASE
IA INDIAN TRUST ALLOTMENT
WR WILDLIFE REFUGE
V-GR PUBLIC DOMAIN - GAME RANGE
PSW POWERSITE WITHDRAWAL
RW-PS RECLAMATION WITHDRAWAL - POWERSITE WITHDRAWAL
LU LAND UTILIZATION Project - Federal land acquired under Title III of the Bankhead Jones Act of 1937
Boundary of Grazing District Area
Study Area Boundary Line (Missouri River Basin Studies, Bureau of Land Management)
Formula Area Boundary Line
Isolated Tract Classification Boundary Line
POTENTIAL IMPROVEMENT SITES
Reservoir
Spring with Trough
Fence
DOMINION OF
MONTANA
Great Falls
Fort Pk. Res.
HELENA
Yellowstone
IDAHO
WYOMING
LOCATION MAP

GREASEWOOD

ANNUAL WEEDS

V Range or woodland; farming only if irrigation water becomes available

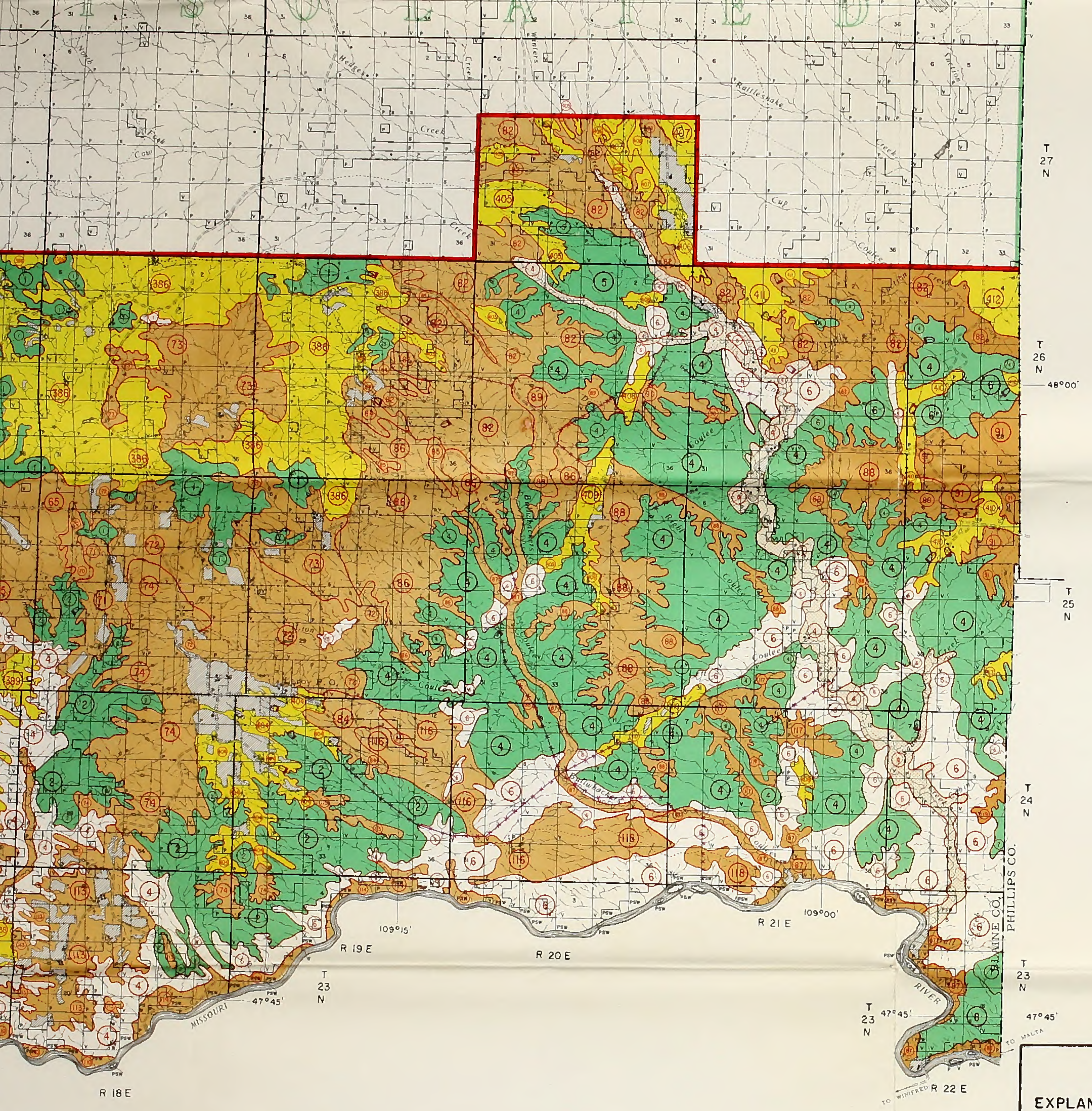
VI Range and woodland only

VII Range and woodland with severe restriction

VIII Watershed, wildlife and recreation

Recent alluvium and recent outwash

Y Clay



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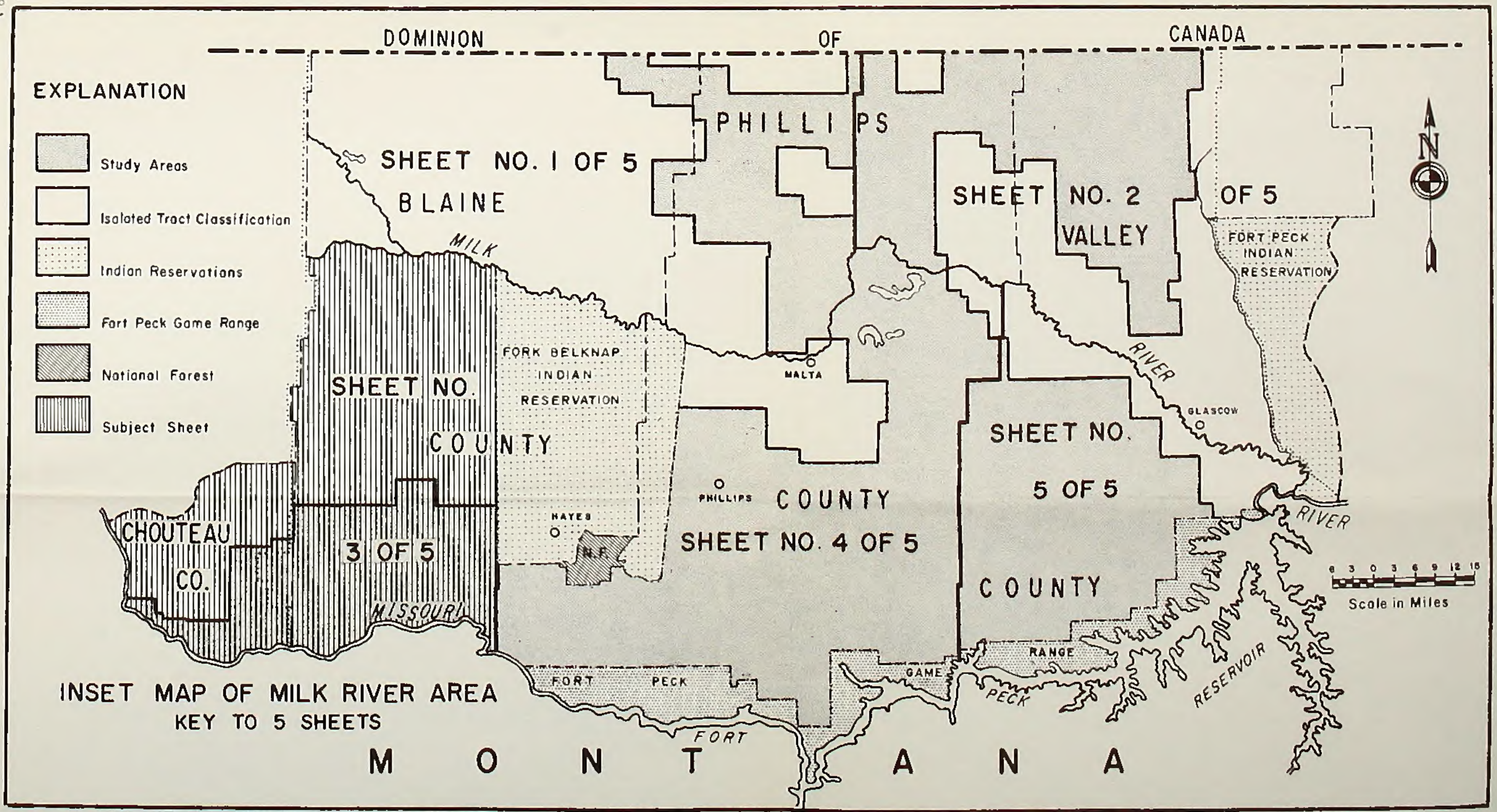
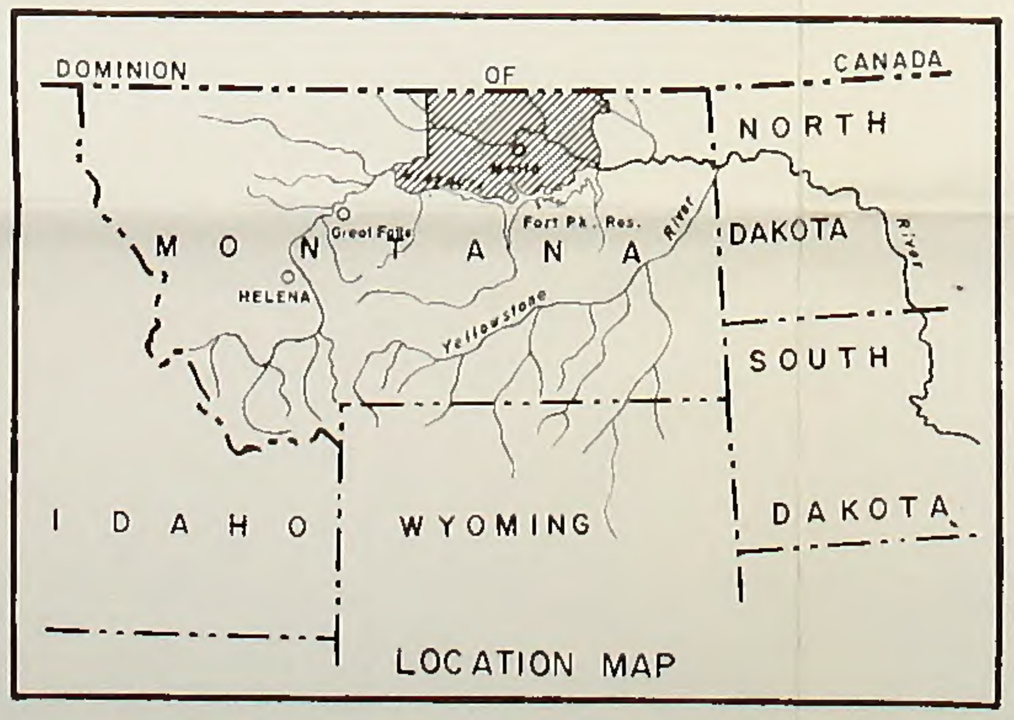


INSET MAP OF MILK RIVER AREA
KEY TO 5 SHEETS

POTENTIAL IMPROVEMENT SITES

⊸	Reservoir
⊸○	Spring with Trough
—×—×—	Fence



LOCATION MAP

580(281)
Un345L

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
AREA 3

MILK RIVER AREA MAP

MONTANA

SHOWING
VEGETATION, RANGE CONDITION, RECOMMENDED STOCKING RATE
RANGE SITE AND LAND USE CAPABILITY
AND POTENTIAL IMPROVEMENT SITES

SHEET 4 OF 5

PLEASE REPLACE IN POCKET
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EXPLANATION

- ▨ Study Areas
- ☐ Isolated Tract Classification
- ▨ Indian Reservations
- ▨ Fort Peck Game Range
- ▨ National Forest
- ▥ Subject Sheet

POTENTIAL IMPROVEMENT SITES

- Chek Dam
- Reservoir
- Detention Dam
- Spring with Trough
- Well and Windmill
- Water Spreading Dikes
- Rodent Control
- Reseeding
- Fence
- Unimproved Dirt Road
- Unimproved Dirt Road

- Study Area Boundary Line (Missouri River Basin Studies, Bureau of Land Management)
- Formula Area Boundary Line
- Isolated Tract Classification Boundary Line
- FORT PECK GAME RANGE Range type write-up Boundary Line
- Wildlife Refuge Boundary Line
- FORT PECK GAME RANGE Study Area Boundary Line. Data shown compiled from range survey made by the Fish and Wildlife Service and Bureau of Land Management 1955.

LEGEND

HYDROGRAPHIC FEATURES

- River
- Lake
- Perennial stream
- Intermittent stream
- Canal
- Dam
- Intermittent lake
- Contour Furrow
- FORT PECK RESERVOIR
- Well, water
- Artesian well
- Spring
- Spring, Improved
- Dike

HYPSOGRAPHIC FEATURES

- Depression contours
- Prominent peak
- Bluffs or cliffs (barrier to livestock)

CULTURE

- Windmill
- Well, oil or gas
- Oil tanks
- Corral
- Open pit mine or quarry
- Bridge
- Airport
- Cemetery

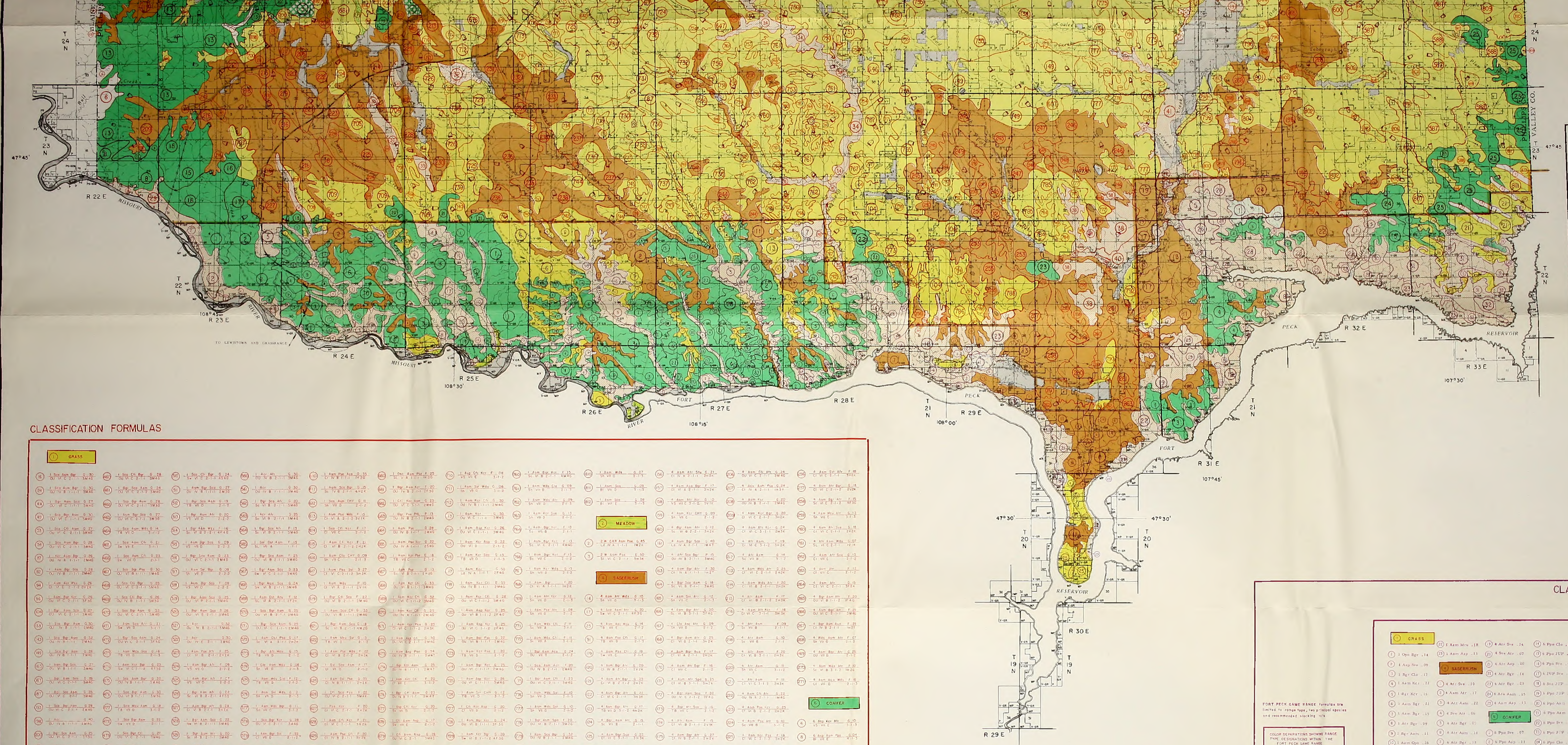
CULTURE

- Dwelling, Occupied
- Church
- School
- Ranger Station
- Post Office
- Pipeline
- Telephone or Telegraph line
- Power Transmission line
- Fence
- Cropland
- Water Spreader
- Marsh or Swamp
- Found Corner

ROADS

- U. S. State Highway (hard surface)
- State Highway (hard surface)
- State Highway (Improved dirt road)
- Improved dirt road
- Unimproved dirt road
- Trail, jeep road
- Railroad

BOUNDARIES



Unimproved dirt road
Trail, jeep road
Railroad

BOUNDARIES

National
State
County
National Forest, Indian Reservation
Fort Peck Game Range

LANOOWNERSHIP OESIGNATION

LANDOWNERSHIP STATUS

V	PUBLIC OOMAIN
SOW	PUBLIC DOMAIN (Stock Driveway)
S	STATE
PWR	PUBLIC WATER RESERVE
RW	RECLAMATION WITHDRAWAL
P	PRIVATE
PS	POWERSITE WITHDRAWAL
MW	MILITARY WITHORAWAL
MP	MILITARY PURCHASE
IA	INDIAN TRUST ALLOTMENT
WR	WILDLIFE REFUGE
V-GR	PUBLIC DOMAIN - GAME RANGE
PSW	POWERSITE WITHDRAWAL
RW-PS	RECLAMATION WITHDRAWAL POWERSITE WITHORAWAL
LU	LAND UTILIZATION Project - Federal land acquired under Title III of the Bankhead Jones Act of 1937

CLASSIFICATION FORMULAS

① GRASS

CLASSIFICATION FORMULAS

CLASSIFICATION FORMULAS
FORT PECK GAME RANGE

FORT PECK GAME RANGE formulas are limited to range type, two principal species and recommended stocking rate

COLOR SEPARATIONS SHOWING RANGE TYPE DESIGNATIONS WITHIN THE FORT PECK GAME RANGE

1-	GRASS
4-	SAGEBRUSH
5-	BROWSE-SHRUB
6-	CONIFER
8-	BARREN
9-	JUNIPER
10-	BROAD-LEAF TREES
14-	GREASEWOOD
17-	HALF SHRUB

① GRASS

① 1 Opo Bgr .14
② 1 Asp Sve .09
③ 1 Bgr Clo .17
④ 1 Asm Kcr .21
⑤ 1 Bgr Kcr .15
⑥ 1 Asm Bgr .21
⑦ 1 Asm Bgr .15
⑧ 1 Atr Bgr .09
⑨ 1 Bgr Asm .11
⑩ 1 Asm Opo .26
⑪ 1 Bgr Asm .13
⑫ 1 Bgr Opo .05
⑬ 1 Asm Bgr .09
⑭ 1 Bgr Asm .19
⑮ 1 Bgr Asm .25
⑯ 1 Asm Poe .16
⑰ 1 Bgr Asm .16
⑱ 1 Bgr Sco .19
⑲ 1 Bgr Cli .17
⑳ 1 Cli Bgr .31
㉑ 1 Cge Sco .15
㉒ 1 Asm Mcu .18
㉓ 1 Asm Asp .11

④ SAGEBRUSH

① 4 Atr Sve .10
② 4 Asm Atr .17
③ 4 Atr Asm .22
④ 4 Sve Atr .06
⑤ 4 Atr Bgr .07
⑥ 4 Atr Asm .10
⑦ 4 Atr Bgr .13
⑧ 4 Atr Mcu .08
⑨ 4 Atr CHY .08
⑩ 4 CHY Asm .14
⑪ 4 Atr Asm .16
⑫ 4 Asm Aca .11
⑬ 4 Atr Asm .19
⑭ 4 Atr Opo .04
⑮ 4 Atr Asm .12
⑯ 4 Asm RUM .15
⑰ 4 Atr Opo .08
⑱ 4 Atr Asm .14
⑲ 4 Atr Sve .14
⑳ 4 Sve Atr .07
㉑ 4 Atr Asp .20
㉒ 4 Atr Bgr .14
㉓ 4 Atr Bgr .23
㉔ 4 Aca Asm .15
㉕ 4 Asm Asp .13

⑥ CONIFER

① 6 Ppo Sve .07
② 6 Ppo Asp .11
③ 6 Ppo JUP .07
④ 6 Ppo Sve .05
⑤ 6 Ppo JUP .08
⑥ 6 Ppo JUP .11
⑦ 6 Ppo Ptr .21
⑧ 6 Ptr JUP .15
⑨ 6 Ptr JUP .09
⑩ 6 Ppo Ptr .08
⑪ 6 Ppo Asm .10
⑫ 6 JUP Atr .08
⑬ 6 Ppo Asm .10
⑭ 6 Ppo Clo .09
⑮ 6 Ppo JUP .03
⑯ 6 Ppo Sve .03
⑰ 6 JUP Sve .06
⑱ 6 Sve JUP .09
⑲ 6 Ppo JUP .20
⑳ 6 Ppo Asm .22
㉑ 6 Ppo Asm .16
㉒ 6 Ppo Sve .09
㉓ 6 Ppo JUP .14
㉔ 6 Ppo Clo .11
㉕ 6 Ppo Asp .07
㉖ 6 JUP MUH .09
㉗ 6 Ppo Asm .13
㉘ 6 SYM Asp .16
㉙ 6 Ppo Mcu .09
㉚ 6 Ppo Cge .08
㉛ 6 Ppo Sve .14
㉜ 6 Ptr Ppo .07

④⑧ BARREN

① 8 Barren .00

⑩ BROAD-LEAF TREES

① 10 SYM SLX .11
② 10 SYM ROS .20
③ 10 Ppr SLX .18
④ 10 Asm SLX .18

⑭ GREASEWOOD

① 14 Sve Asm .13
② 14 Ave Mcu .08
③ 14 Sve Opo .09
④ 14 Sve Bgr .10
⑤ 14 Sve Asm .11
⑥ 14 Sve Atr .07
⑦ 14 Sve Clo .07
⑧ 14 Sve Asm .06
⑨ 14 Sve Opo .07
⑩ 14 Sve Atr .11
⑪ 14 Sve Aca .10
⑫ 14 Sve Asp .07
⑬ 14 Sve CHE .08
⑭ 14 Sve Asm .18
⑮ 14 Sve Asm .11
⑯ 14 Sve CHY .11
⑰ 14 Sve CHY .21
⑱ 14 Sve Clo .10
⑲ 14 Sve Asm .08
⑳ 14 Sve Atr .09
㉑ 14 Asm Bgr .07
㉒ 14 Sve Asm .07
㉓ 14 Sve Asm .09
㉔ 14 Sve Aca .13
㉕ 14 Sve Opo .03
㉖ 14 Sve Atr .08
㉗ 14 Sve Asm .02
㉘ 14 Sve Clo .02
㉙ 14 Sve Asm .04
㉚ 14 Sve Atr .04
㉛ 14 Sve Atr .05
㉜ 14 Sve Atr .10
㉝ 14 Sve Atr .16

⑰ HALF SHRUB

① 17 ERI Atr .10

EXPLANATION OF SYMBOLS IN FORMULA

$$\frac{\text{1 Asm Kcr Atr E .16}}{\text{OU VI B 2-1-3 2H 3K}}$$

PRINCIPAL SPECIES OF VEGETATION
See report Appendix B for plant names designated by these symbols

CONDITION CLASSIFICATION

E	Excellent	(76 - 100% of climax species remaining)
G	Good	(51 - 75% of climax species remaining)
F	Fair	(26 - 50% of climax species remaining)
P	Poor	(0 - 25% of climax species remaining)

RECOMMENDED STOCKING RATE
ANIMAL UNIT MONTHS PER ACRE

COLOR SEPARATIONS SHOWING RANGE TYPE DESIGNATIONS

1-	GRASS
2-	MEADOW
4-	SAGEBRUSH
5-	BROWSE-SHRUB
6-	CONIFER
7W-	WASTE
7T	TIMBER AND BRUSH
8-	BARREN
10-	BROAD-LEAF TREES
	SALTBUSH
14-	GREASEWOOD
	ANNUAL WEEDS

SITE DESIGNATIONS

Bl	Badlands
Cl	Clay
Gr	Gravel
Ld	Lowland
OU	Ordinary Upland
Sc	Scabland
Sh	Shale
SL	Saline Lowland
SU	Saline Upland
Sw	Shallow
Sy	Sandy
TB	Thin Breaks
VS	Very Shallow

SLOPE DESCRIPTION

A	Nearly level	0 - 3%
B	Gently	4 - 15%
C	Moderately	16 - 30%
D	Strongly	31 - 45%
E	Steep	46 - 60%
F	Very steep	61% +

SOIL EROSION
Sheet - Wind - Gully

1 None to slight
2 Slight to moderate
3 Moderate to severe
4 Severe to critical
5 Critical to extreme

EFFECTIVE DEPTH

1	Very deep	60 inches or more
2	Deep	30-60 inches
3	Moderately deep	20-36 inches
4	Shallow	10 - 20 inches
5	Very shallow	less than 10 inches

PERMEABILITY

1 Very slow
2 Slow
3 Moderately slow
4 Moderate
5 Moderately rapid

TEXTURE OF TOPSOIL

V	Very heavy
H	Heavy
F	Medium heavy
M	Medium
S	Moderate light
L	Light

TYPE OF UNERLYING MATERIAL

F	Sandstone
G	Glacial material
K	Shale or slate
T	Old alluvium, terrace or outwash alluvial
X	Recent alluvium and recent outwash
Y	Clay

LAND USE CAPABILITY

IV	Limited or occasional cultivation; best for permanent hay or pasture
V	Range or woodland; farming only if irrigation water becomes available
VI	Range and woodland only
VII	Range and woodland with severe restriction
VIII	Watershed, wildlife and recreation

Compiled and drafted by John L. Kovàcs - Area 3 - Denver, 1959.

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MILK RIVER AREA MAP

MONTANA

SHOWING

VEGETATION, RANGE CONDITION, RECOMMENDED STOCKING
RANGE SITE AND LAND USE CAPABILITY
AND POTENTIAL IMPROVEMENT SITES

SHEET 5 OF 5

580(281)
Un345L

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SHOWING

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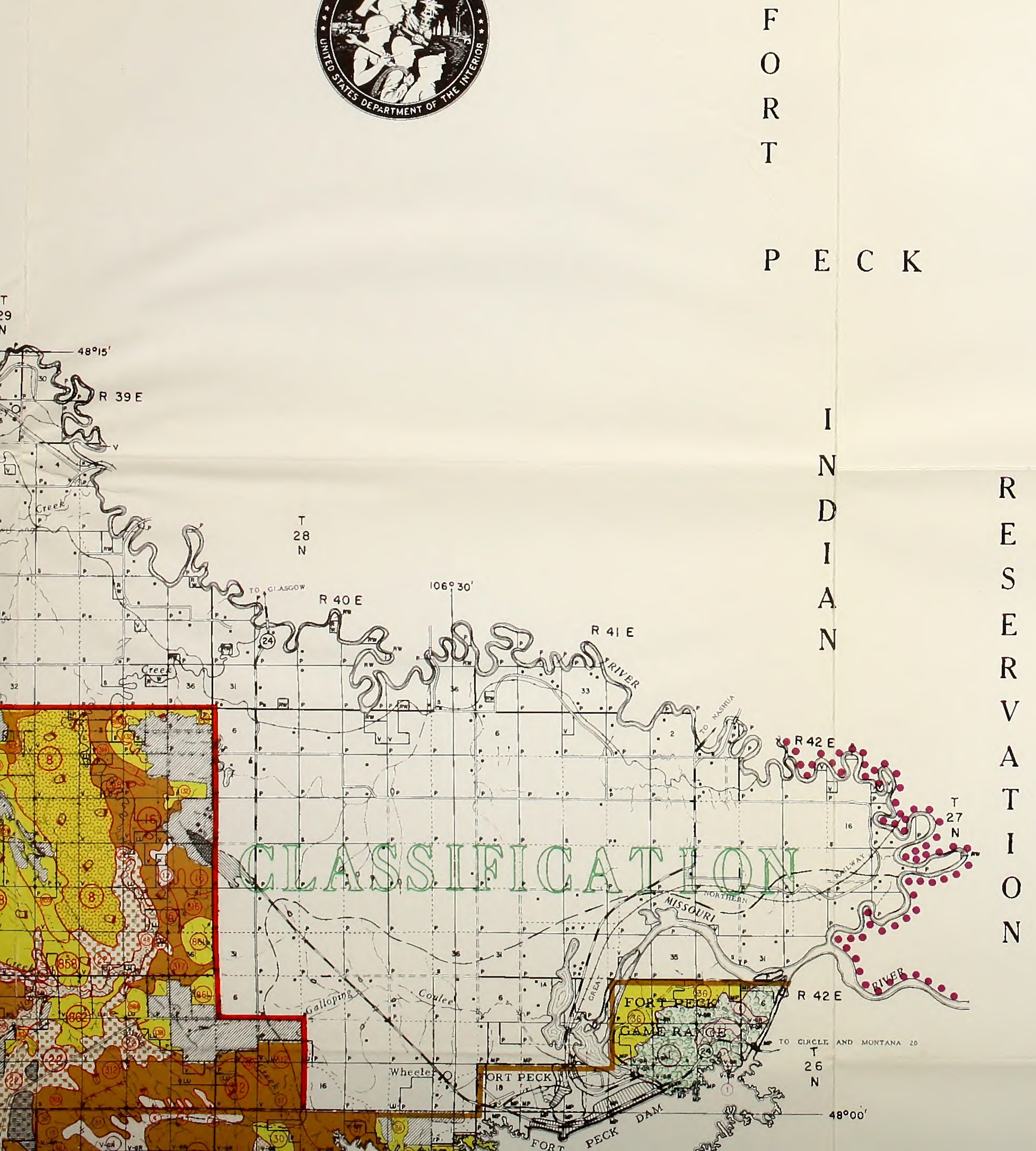
RANGE SITE AND LAND USE CAPABILITY
AND POTENTIAL IMPROVEMENT SITES

SHEET 5 OF 5

Scale in Miles



CLASSIFICATION FORMULAS

① GRASS

(40)	1 Bgr Asm Sco G.28	OU VI C 1-1-1 3M4G
(44)	1 Bgr Asm Sco G.27	OU VI C 1-1-1 3M4G
(53)	1 Sco Cli Asm G.27	OU VI C 2-1-1 3M4G
(54)	1 Sco Asm Bgr G.28	OU VI C 2-1-1 3M4G
(92)	1 Asm Bgr Sco G.28	OU IV B 1-1-1 2M4G
(96)	1 Asm Bgr Kcr G.26	OU VI C 2-1-1 3F3G
(104)	1 Bgr Asm Sco G.27	OU VI C 2-1-1 3M4G
(132)	1 Sco Asm Bgr G.30	OU IV B 1-1-1 2M4G
(138)	1 Sco Bgr Asm G.30	OU IV B 1-1-1 2M4G
(141)	1 Asm Bgr Sco G.29	OU VI C 1-1-1 2M4G
(155)	1 Bgr Asm Sco G.25	OU VI C 1-1-1 3M4G
(167)	1 Bgr Asm Sco G.26	OU VI C 2-1-1 3M4G
(193)	1 Sco Bgr Asm G.28	OU VI C 2-1-1 2M4G
(263)	1 Bgr Asm Kcr G.24	OU VI C 2-1-1 3F4G
(353)	1 Asm Wds Kcr G.08	Sh VII O 3-1-3
(473)	1 Asm Mcu Sco G.16	TB VII O 2-1-3
(474)	1 Asm Kcr Bgr G.23	Sw VI C 1-1-2 4F3G
(483)	1 Asm Bgr Kcr G.21	Sw VII O 2-1-1
(487)	1 Sco Cli Asm G.16	TB VII E 3-1-3
(488)	1 Sco Bgr Asm G.31	OU VI B 2-1-1 3M4G
(506)	1 Bgr Sco Asm G.28	OU VI B 1-1-1 2M4G
(516)	1 Bgr Sco Asm G.23	OU VI C 2-1-1 2M4G
(577)	1 Asm Wds Bgr G.11	Sh VII O 3-1-2
(578)	1 Sco Bgr Kcr G.28	OU VI C 2-1-1 3M4G
(580)	1 Asm Bgr Svi F.20	Cl VII O 2-1-2
(582)	1 Asm Alr Anu P.09	SL VI B 2-1-2 3V1K
(584)	1 Asm Wds G.10	Sh VII D 2-1-3
(588)	1 Asm Sco G.30	OU VI C 1-1-1 1S4G
(805)	1 Sco Asm Bgr G.23	Sw VII O 2-1-2
(809)	1 Asm Wds G.14	Sh VII D 2-1-3
(810)	1 Asm Wds G.07	Sh VII D 2-1-3
(812)	1 Asm Sco G.09	Bl VII E 3-1-3
(813)	1 Bgr Alr Asm F.20	Sw VI C 2-1-2 4F3G
(814)	1 Bgr Cli Sco G.17	TB VII D 2-1-2
(815)	1 Bgr Asm G.20	TB VII O 2-1-2
(816)	1 Asm Bgr Kcr F.22	Cl VI C 2-1-1 3H2K
(817)	1 Bgr Asm Sco F.22	OU VI C 1-1-1 2F3G
(818)	1 Bgr Sco Asm G.24	OU VI C 1-1-1 2F3G
(819)	1 Asm Bgr Kcr F.18	Cl VI B 2-1-1 3H2K
(820)	1 Bgr Sco Asm G.23	OU VI C 1-1-1 2F3G
(821)	1 Bgr Asm Sco F.20	OU VI C 2-1-1 2F3G
(822)	1 Sco Bgr Asm G.23	OU VI C 3-1-1 2M4G
(823)	1 Sco Asm Bgr G.28	OU IV B 1-1-1 1M4G
(824)	1 Asm Bgr Sco G.20	Sc VI C 2-1-1 3F3G
(825)	1 Asm Kcr Alr G.17	TB VI C 2-1-2 2H2K
(826)	1 Asm Bgr Kcr F.20	Cl VI B 2-1-1 3H2K
(827)	1 Sco Bgr Asm G.20	TB VII O 2-1-2
(828)	1 Sco Asm Bgr G.24	OU VII C 3-1-1
(829)	1 Kcr Asm Cli E.12	Sh VII C 3-1-2
(830)	1 Clo Asm JUP G.10	Sh VII C 3-1-3
(831)	1 Sco Bgr Alr F.16	OU VII C 3-1-1
(832)	1 Bgr Asm Pse F.20	Cl VI B 2-1-1 2H2K
(833)	1 Asm Alr Wds E.12	Sh VII C 2-1-2
(834)	1 Asm Bgr Kcr F.17	Cl VI B 2-1-1 3H2K
(835)	1 Asm Kcr Alr E.12	Sh VII B 2-1-2
(836)	1 Asm Kcr Alr E.12	Sh VII C 2-1-2
(837)	1 Asm Bgr Kcr F.15	Cl VI B 2-1-1 3H2K
(838)	1 Bgr Pse P.09	Cl VII C 2-1-1
(839)	1 Asm Sco P.11	Cl VII C 2-1-2
(840)	1 Asm Kcr Alr G.10	Sh VII C 2-1-2
(841)	1 Asm Kcr JUP G.09	Sh VII C 3-1-3
(842)	1 Asm Alr Wds P.13	Cl VI C 3-1-3 3H3K
(843)	1 Asm Wds Alr G.09	Sh VII C 2-1-3
(844)	1 Asm Wds Alr P.13	Cl VI C 2-1-3 3H2K
(845)	1 Asm Clo Kcr G.10	Sh VII D 3-1-3
(846)	1 Asm Kcr Cli G.10	Sh VII C 3-1-3
(847)	1 Asm Clo JUP G.08	Sh VII D 3-1-3
(848)	1 Asm Hju F.18	Cl VI A 2-1-2 2V2K
(849)	1 Asm Cli Kcr G.13	TB VII C 2-1-2
(850)	1 Pse Asm P.09	Cl VI B 2-1-1 2H3K
(851)	1 Asm Wds Alr G.10	Sh VII O 3-1-3
(852)	1 Asm SYM Svi G.33	Cl VI B 1-1-1 1H2K
(853)	1 Asm Bgr Alr F.20	OU VI C 2-1-1 3F3G
(854)	1 Asm Bgr Alr F.20	OU VI C 2-1-1 3M4G
(855)	1 Asm Clo Asc E.12	Sh IV B 1-1-1 2F3G
(856)	1 Bgr Asm Alr F.25	OU IV B 1-1-1 2F3G
(857)	1 Bgr Asm Alr F.25	OU VI C 2-1-1 2F3G
(858)	1 Asm Asc Wds G.09	Sh VII D 3-1-3
(859)	1 Asm Bgr Kcr F.25	Cl VI B 2-1-2 2H2K
(860)	1 Sco Bgr G.25	TB VII O 2-1-1
(861)	1 Bgr Sco Asm F.22	OU IV B 1-1-1 2M4G
(862)	1 Asm Anu Pse F.14	Cl VI B 2-1-1 2H2T
(863)	1 Asm Bgr Alr F.15	Cl VII C 2-1-2
(864)	1 Asm Alr F.20	Cl IV B 2-1-2 2H2K
(865)	1 Asm Bgr Cli F.14	Cl VI C 3-1-2 4H2K
(866)	1 Asm Bgr Opo F.19	OU VI B 2-1-2 2F3G
(867)	1 Asm Bgr Spo F.26	Cl IV A 1-1-1 2H2K
(868)	1 Asm Bgr Sco F.22	OU VI C 2-1-2 2F3K
(869)	1 Sco Cli Bgr G.20	TB VII E 2-1-2
(870)	1 Asm Bgr Kcr F.17	Cl VI B 2-1-2 4H2K
(871)	1 Asm Wds Alr G.10	Sh VII C 3-1-2
(872)	1 Asm Wds Alr G.08	Sh VII D 3-1-3
(873)	1 Asm Bgr Shy F.18	Cl VI C 3-1-1 3H3K
(874)	1 Sco Bgr Kcr G.29	Sy VI C 2-1-1 2S5G
(875)	1 Sco Bgr Kcr G.30	Sy VI C 1-1-1 2S5G
(876)	1 Asm Bgr Sco G.17	TB VII D 2-1-2
(877)	1 Asm Bgr Alr G.25	Cl VI B 1-1-2 2H3G
(878)	1 Asm Bgr Shy F.16	Cl VI C 3-1-1 3H3K
(879)	1 Hju Acr Anu F.12	Cl VI B 2-1-1 2H2T
(880)	1 Bgr Asm Opo F.17	OU VI C 1-1-1 2F4G
(881)	1 Asm Bgr Alr F.16	OU VI C 2-1-1 2F3G
(882)	1 Asm Bgr Sco F.20	Cl VI C 2-1-1 1H2K
(883)	1 Asm Hju Pse F.18	Cl IV A 2-1-1 2H2T
(884)	1 Bgr Asm Alr F.20	OU IV B 1-1-1 2F4G
(885)	1 Asm Bgr Sco G.26	OU VI B 1-1-2 2M4G
(886)	1 Sco Cli Bgr G.21	TB VII D 2-1-1
(887)	1 Sco Bgr Cli G.28	OU VI C 1-1-1 2S5G
(888)	1 Sco Bgr Cli G.28	OU VI C 1-1-1 2M5G
(889)	1 Sco Cli Bgr G.18	TB VII O 2-1-2
(890)	1 Bgr Sco Asm G.26	OU VI C 2-2-1 3S5F
(891)	1 Bgr Sco Asm G.28	OU IV B 1-1-1 3S5F
(892)	1 Asm Bgr Wds G.23	Cl IV B 1-1-1 2H2K
(893)	1 Asm Clo Wds G.10	Sh VII O 2-1-3
(894)	1 Sco Cli Bgr G.20	TB VII D 2-1-2
(895)	1 Bgr Asm Sco G.30	OU VI C 1-1-1 3F3G
(896)	1 Sco Bgr Asm G.28	OU VI B 1-1-1 2M5G
(897)	1 Asm Svi Bgr F.23	Cl VI C 2-1-2 2H2K
(898)	1 Bgr Asm Sco G.22	Sw VI C 2-1-1 2F3G
(899)	1 Asm Bgr Svr G.26	Cl VI C 2-1-2 2H2K
(900)	1 Asm Wds Alr G.10	Sh VII C 3-1-3
(901)	1 Asm Bgr Sco G.15	TB VII O 2-1-2
(902)	1 Asm Bgr Wds F.24	OU VI B 2-1-1 2F3G
(903)	1 Bgr Sco Asm G.28	Sy VI C 2-1-1 3S5F
(904)	1 Asm Wds Mcu F.18	Cl VII D 2-1-2
(905)	1 Asm Bgr Clo G.13	Sh VII D 2-1-3
(906)	1 Asm Svi Wds F.22	Cl VI C 2-1-2 2H2K
(907)	1 Asm Wds Asc E.14	Sh VII O 2-1-3
(908)	1 Bgr Sco Asm G.25	Sy VI C 2-1-1 3S5F
(909)	1 Dsl Bgr Pse G.28	Sy VI C 2-1-1 3S5F

④ SAGEBRUSH

(16)	4 Asm Alr Wds G.10	Sh VII O 3-1-3
(131)	4 Asm Aco G.30	Cl V B 2-1-1 2H2K
(135)	4 Asm Bgr All G.24	Cl VI C 3-1-1 3H3K
(137)	4 Asm Bgr All G.20	Cl VI C 3-1-1 3H3K
(138)	4 Asm Arr Wds G.08	Sh VII C 3-1-3
(140)	4 Asm Alr Sco G.15	Sw VI C 3-1-1 4H3K
(141)	4 Asm Alr Bgr F.14	Cl VI C 2-1-2 3H2K
(142)	4 Asm Wds Alr G.09	Sh VII O 3-1-2
(143)	4 Asm Alr Bgr F.12	Cl VII C 3-1-2
(144)	4 Asm Bgr Alr F.15	Cl VII C 2-1-2
(170)	4 Asm Alr Bgr F.16	Cl VII C 2-1-2
(173)	4 Bgr All Sco G.16	TB VII C 2-1-2
(177)	4 Alr Wds Asm G.07	Sh VII D 3-1-2
(271)	4 Asm Bgr Alr G.24	Cl VI C 2-1-2 2H4K
(272)	4 Asm Sco Bgr G.22	Cl VII C 2-1-2
(273)	4 Asm Bgr Alr F.20	Cl VI C 2-1-1 3H2K
(274)	4 Asm Alr Wds G.22	Cl VI C 2-1-1 2H2K
(275)	4 Asm Bgr Sco G.20	Sc VI C 3-1-1 4F3G
(276)	4 Asm Mcu Alr F.16	Cl VII O 2-1-2
(277)	4 Bgr Asm Alr F.16	Cl VII D 2-1-1
(278)	4 Bgr Asm Alr F.18	Cl VII D 2-1-1
(279)	4 Bgr Asm Arr F.18	OU VI C 2-1-1 2F3G
(280)	4 Asm Bgr Alr F.17	Cl VI A 2-1-2 2V2K
(281)	4 Asm Alr Bgl F.18	Cl VII C 2-1-2
(282)	4 Asm Wds All G.10	Sh VII D 2-1-2
(283)	4 Asm Alr G.28	Cl IV B 3-1-1 1H2K
(284)	4 Asm Alr Dsl G.24	Cl IV B 2-1-1 1H2T
(285)	4 Asm Bgr Pse G.27	Cl IV B 2-1-3 1H3T
(286)	4 Asm Bgr Alr G.10	Sc VII C 3-1-2
(287)	4 Asm Alr Wds E.12	Sh VII C 2-1-2
(288)	4 Asm Sco Bgr G.20	Sw VI C 2-1-1 4M4G
(289)	4 Asm Sco Alr F.18	Cl VII C 2-1-2
(290)	4 Asm Alr Bgr F.15	Cl VII C 3-1-2
(291)	4 Asm Alr Wds G.11	Sh VII C 2-1-2
(292)	4 Asm Alr Wds F.10	SL VI B 2-1-2 2H2K
(293)	4 Asm Ali Spo G.25	Cl VI B 3-1-1 3H3K
(294)	4 Asm Alr SLX P.12	SL VI A 2-1-2 2V2K
(295)	4 Asm Alr Anu G.14	SU VI B 3-1-3 3V2K
(296)	4 Bgr Sco Alr F.15	OU VII C 2-1-2
(297)	4 Asm Wds Alr G.08	Sh VII O 3-1-3
(298)	4 Asm Mcu Alr F.18	Cl VII O 2-1-2
(299)	4 Asm Bgl Alr F.22	Cl VI C 2-1-1 3H2K
(300)	4 Asm Alr Svi G.12	Sh VII C 3-1-3
(301)	4 Asm Alr Bgr P.11	Cl VI B 3-1-1 3H2K
(302)	4 Asm Bgr Alr G.13	Sc VI A 2-1-2 2H2K
(303)	4 Alr Asm Opo F.11	SU VI B 3-1-2 2H2K
(304)	4 Asm Alr Svi G.16	TB VII C 3-1-2
(305)	4 Asm Alr G.12	Sh VII O 3-1-3
(306)	4 Asm Alr Svi F.16	Cl VII C 2-1-2
(307)	4 Asm Alr Opo G.18	Cl VI B 2-1-2 2H2K
(308)	4 Asm Bgr All G.15	Sc VI B 3-1-1 2H2K
(309)	4 Asm Bgr Alr G.17	Sw VI C 2-1-2 4H2K
(310)	4 Asm Clo Wds G.10	Sh VII C 2-1-3
(311)	4 Asm Bgr Alr F.18	OU VI C 2-1-1 3F3G
(312)	4 Asm Afr Wds G.12	Sh VII C 2-1-2
(313)	4 Asm Alr Bgr F.20	Cl VI C 2-1-1 2H2K
(314)	4 Asm Alr Kcr F.25	Cl VI B 2-1-2 2H2T
(315)	4 Alr Hju Wds P.07	Cl VI B 2-1-2 2V1T
(316)	4 Asm Kcr Alr F.18	Cl VI C 2-1-2 2H2K
(317)	4 Asm Alr CHY G.10	Sh VII C 3-1-3
(318)	4 Asm Bgr Alr G.12	SU VI B 2-1-2 3H2K
(319)	4 Asm Bgr Alr F.20	Cl VI B 2-1-1 2H2K
(320)	4 Asm Alr Wds G.09	Sh VII C 3-1-3
(321)	4 Asm Alr F.16	Cl VI C 2-1-2 2H2K
(322)	4 Asm Alr Kcr P.12	Cl VI C 3-1-2 3H2K
(323)	4 Asm Alr Bgr F.14	Cl VII C 2-1-2
(324)	4 Asm Kcr Alr E.11	Sh VII C 3-1-3
(325)	4 Asm Alr Bgr F.12	Cl VI B 3-1-2 4H3K
(326)	4 Asm Alr Wds G.09	Sh VII C 2-1-2
(327)	4 Asm Alr Wds G.08	Sh VII C 2-1-2
(328)	4 Asm Alr G.21	SU VI B 2-1-1 2V2K
(329)	4 Afr Anu Asm F.09	SU VI B 2-1-2 3V2K
(330)	4 Asm Alr Wds F.14	Cl VI C 3-1-2 3H3K
(331)	4 Alr Anu Asm P.07	Cl VI B 2-1-3 2H2T
(332)	4 Asm Wds Alr G.09	Sh VII D 2-1-3
(333)	4 Asm Alr Wds G.10	Sh VII C 2-1-3
(334)	4 Asm Bgr Alr F.15	Sc VI C 3-1-1 3S5T
(335)	4 Arr Asm Opo F.12	Cl VI B 2-1-2 2H2T
(336)	4 Asm Alr Wds F.17	Cl VI C 2-1-1 1H2K
(337)	4 Asm Acr G.35	Cl VI A 1-1-1 2F3K
(338)	4 Asm Alr G.22	Cl IV B 1-1-1 2H3K
(339)	4 Asm Alr G.23	Cl IV B 1-1-1 2H3K
(340)	4 Asm Alr Bgl F.19	Cl VI C 2-1-2 2H
(341)	4 Asm CHY Alr G.09	Sh VII O 2-1-3
(342)	4 Asm Svr Alr E.12	Sh VII O 2-1-3

⑥ CONIFER

(25)	6 Asm Sco Cli G.17	Sw VII D 2-1-3
(26)	6 Bgr Sco Asm G.16	TB VII O 2-1-3
(27)	6 Bgr Sco Asm G.17	TB VII D 2-1-2
(28)	6 Asm Ppo G.09	Sh VII D 2-1-3

(7 W) WASTE

(12)	7 W	Bl VIII E 4-1-4
(14)	7 W	Bl VIII D 2-1-3

(B B) BARREN

(4)	B B	Bl VIII O 3-1-3
(5)	B B	Bl VIII E 4-1-3

⑬ SALTBUSH

(12)	13 Anu Alr Shy F.08	SU VI B 3-1-3 3V2K
(13)	13 Anu Scr Sve F.08	SU VI A 2-1-2 3V2K
(14)	13 Anu Bgr Asm F.08	SU VI A 3-1-3 4V2K
(15)	13 Anu Asm Sve P.09	SU VI A 3-1-3 2V2K
(16)	13 Anu Asm Alr P.10	SU VI A 3-1-3 2V2K
(17)	13 Anu Asm Hju F.12	SU VI A 3-1-3 2V2K
(18)	13 Anu Asm F.12	SU VI A 3-1-3 2V1K
(19)	13 Anu Asm Shy F.10	SU VI B 3-1-2 3V1K
(20)	13 Anu Asm Opo F.10	Cl IV A 2-1-2 1H2T
(21)	13 Anu Asm Alr F.15	Cl VI B 2-1-1 2H2T
(22)	13 Anu Opo Wds P.05	SL VI A 2-1-1 2V1T
(23)	13 Anu Asm Alr P.09	SU VI A 3-1-3 2V2K
(24)	13 Anu Spo Alr F.09	SU VI A 3-1-3 3V2K
(25)	13 Anu Spo Alr F.09	SU VI B 3-1-3 4V2K
(26)	13 Anu Hju Asm G.12	SU VI A 3-1-2 3V2K
(27)	13 Anu Asm Spo F.10	SU VI B 3-1-3 2V2K
(28)	13 Anu Hju Opo P.07	Cl VI B 2-1-2 2H2T
(29)	13 Anu Wds Asm F.10	Cl IV A 2-1-2 1H2K
(30)	13 Anu Asm Shy F.10	SU VI B 2-1-2 2V1K
(31)	13 Anu Hju Afr P.07	Cl VI B 3-1-3 2H2T
(32)	13 Anu Wds Asm F.10	Cl IV A 2-1-3 1H2T
(33)	13 Anu Pse Wds P.07	Cl VI B 2-1-1 2H2T
(34)	13 Anu Pse Wds P.07	Cl VI B 2-1-2 2H2T
(35)	13 Anu Asm Wds P.09	SU VI B 2-1-1 2H2K

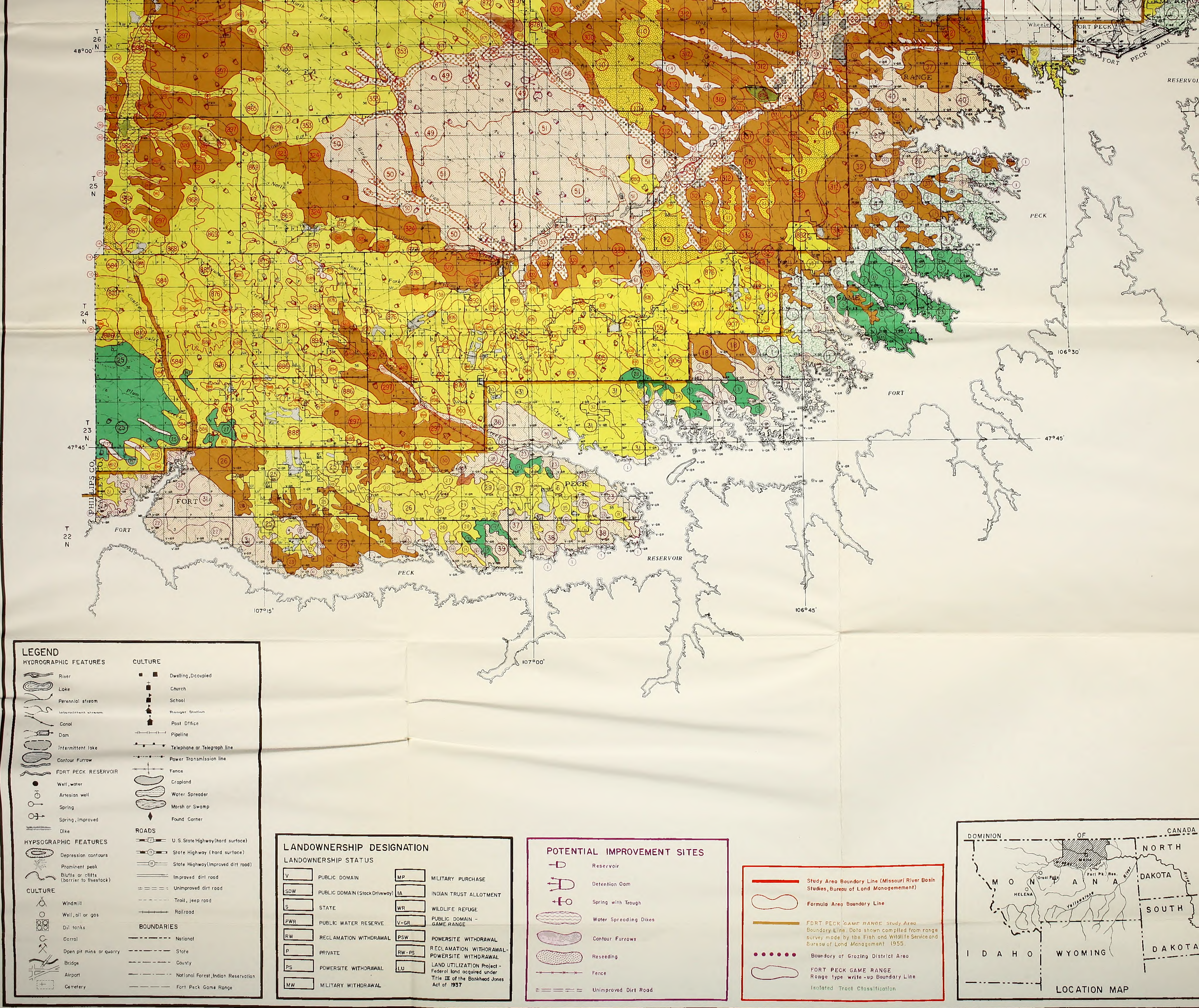
⑭ GREASEWOOD

(5)	14 Asm Sve Shy G.30	SL VI B 2-1-1 2V2K
(14)	14 Sve Asm Alr G.19	SL VI B 2-1-2 4V1K
(45)	14 Asm Sve Alr F.18	Cl IV B 2-1-2 1H2T
(46)	14 Asm Sve Alr F.18	Cl IV B 2-1-1 1H2T
(47)	14 Asm Sve Shy G.30	SL VI A 2-1-1 2H2K
(48)	14 Sve Wds Asm F.13	Cl VI B 2-1-3 2H2T
(49)	14 Wds Sve Asm F.05	Sh VII O 3-1-3
(50)	14 Wds Sve Asm G.07	Sh VII O 3-1-3
(51)	14 Wds Sve Asm G.07	Sh VII C 3-1-3
(52)	14 Asm Sve G.26	SU VI B 3-1-1 2V2K
(53)	14 Asm Wds Sve G.20	SL VI B 2-1-1 2H2K
(54)	14 Asm Bgr Sve G.16	SU VI B 2-1-2 2H2K
(55)	14 Asm Sve F.20	Cl VI C 2-1-2 1H2T
(56)	14 Wds Sve Asm G.05	Sh VII O 3-1-3
(57)	14 Asm Bgr Sve G.16	SU VI C 2-1-2 2H2K
(58)	14 Sve Wds Asm F.13	Cl VI B 2-1-3 1H2T
(59)	14 Asm Sve Wds F.24	SL VI B 2-1-3 2V1K
(60)	14 Sve Asm G.28	SL VI B 2-1-2 2V1K
(61)	14 Anu Bgr Sve G.16	SU VI C 2-1-2 2H2K
(62)	14 Asm Sve Anu F.09	SU VI B 2-1-2 2V2K

⑱ ANNUAL WEEDS

(1)	18 Alr Hho F.05	Sh VII C 2-1-3
(7)	18 Wds Asm Alr P.05	Sh VII O 2-1-3
(8)	18 Wds Asm CHT G.07	Sh VII O 3-1-3
(9)	18 Wds Asm E.05	Bl VII O 3-1-3
(10)	18 Wds Sve F.06	Sh VII O 2-1-2
(11)	18 Wds Asm Sve P.05	Sh VII O 2-1-3
(12)	18 Wds Asm Sve F.07	Sh VII C 3-1-3

EXPLANATION OF SYMBOLS IN FORMULA



LEGEND

HYDROGRAPHIC FEATURES

- River
- Lake
- Perennial stream
- Intermittent stream
- Canal
- Dam
- Intermittent lake
- Contour Furrow
- FORT PECK RESERVOIR
- Well, water
- Artesian well
- Spring
- Spring, Improved
- Dike

HYPSOGRAPHIC FEATURES

- Depression contours
- Prominent peak
- Bluffs or cliffs (barrier to livestock)

CULTURE

- Windmill
- Well, oil or gas
- Oil tanks
- Corral
- Open pit mine or quarry
- Bridge
- Airport
- Cemetery

CULTURE

- Dwelling, Occupied
- Church
- School
- Ranger Station
- Post Office
- Pipeline
- Telephone or Telegraph line
- Power Transmission line
- Fence
- Cropland
- Water Spreader
- Marsh or Swamp
- Found Corner

ROADS

- U.S. State Highway (hard surface)
- State Highway (hard surface)
- State Highway (improved dirt road)
- Improved dirt road
- Unimproved dirt road
- Trail, jeep road
- Railroad

BOUNDARIES

- National
- State
- County
- National Forest, Indian Reservation
- Fort Peck Game Range

LANDOWNERSHIP DESIGNATION

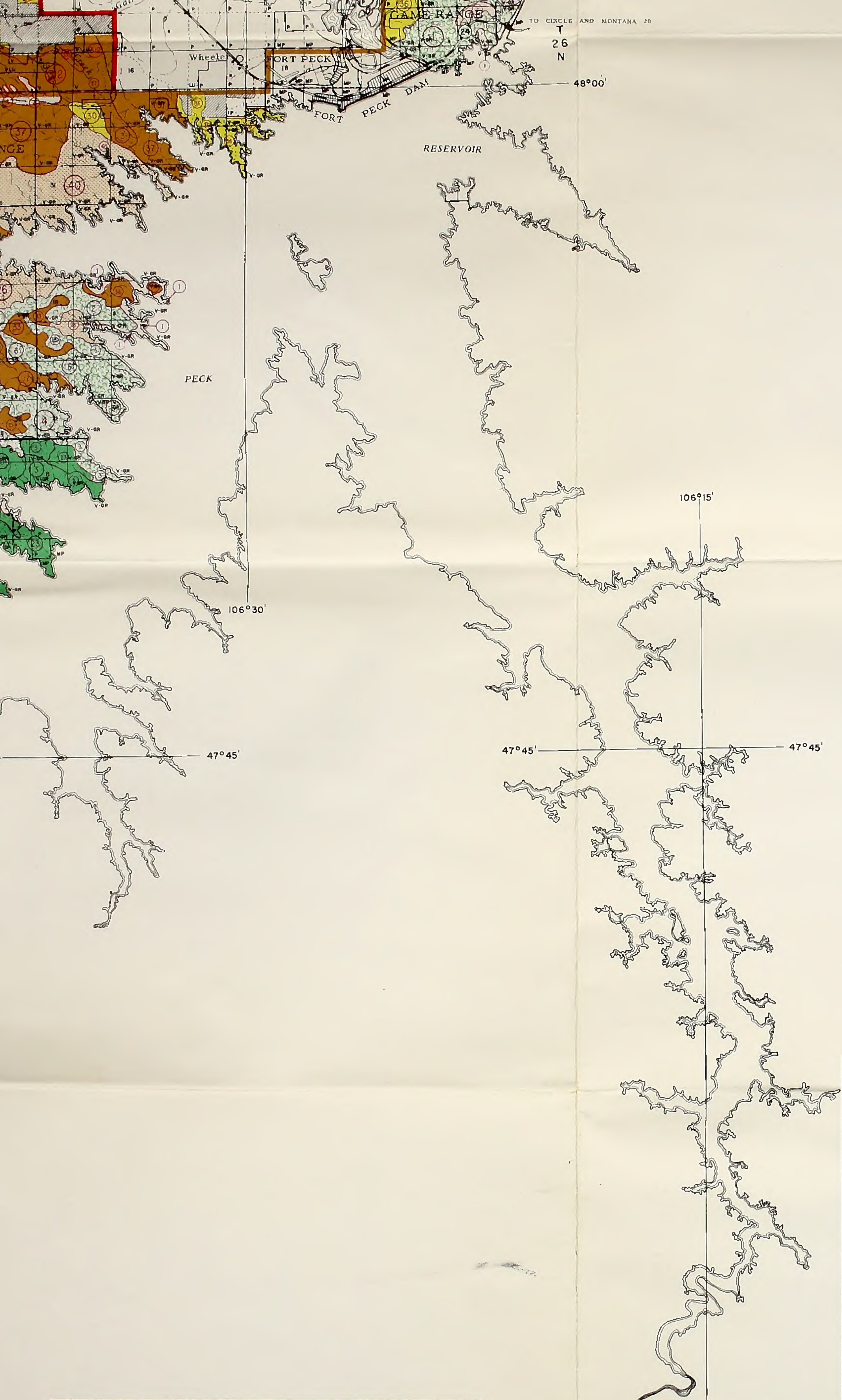
LANDOWNERSHIP STATUS

V	PUBLIC DOMAIN	MP	MILITARY PURCHASE
SDW	PUBLIC DOMAIN (Stock Driveway)	IA	INDIAN TRUST ALLOTMENT
S	STATE	WR	WILDLIFE REFUGE
PWR	PUBLIC WATER RESERVE	V-GR	PUBLIC DOMAIN - GAME RANGE
RW	RECLAMATION WITHDRAWAL	PSW	POWERSITE WITHDRAWAL
P	PRIVATE	RW-PS	RECLAMATION WITHDRAWAL-POWERSITE WITHDRAWAL
PS	POWERSITE WITHDRAWAL	LU	LAND UTILIZATION Project - Federal land acquired under Title III of the Bankhead Jones Act of 1937
MW	MILITARY WITHDRAWAL		

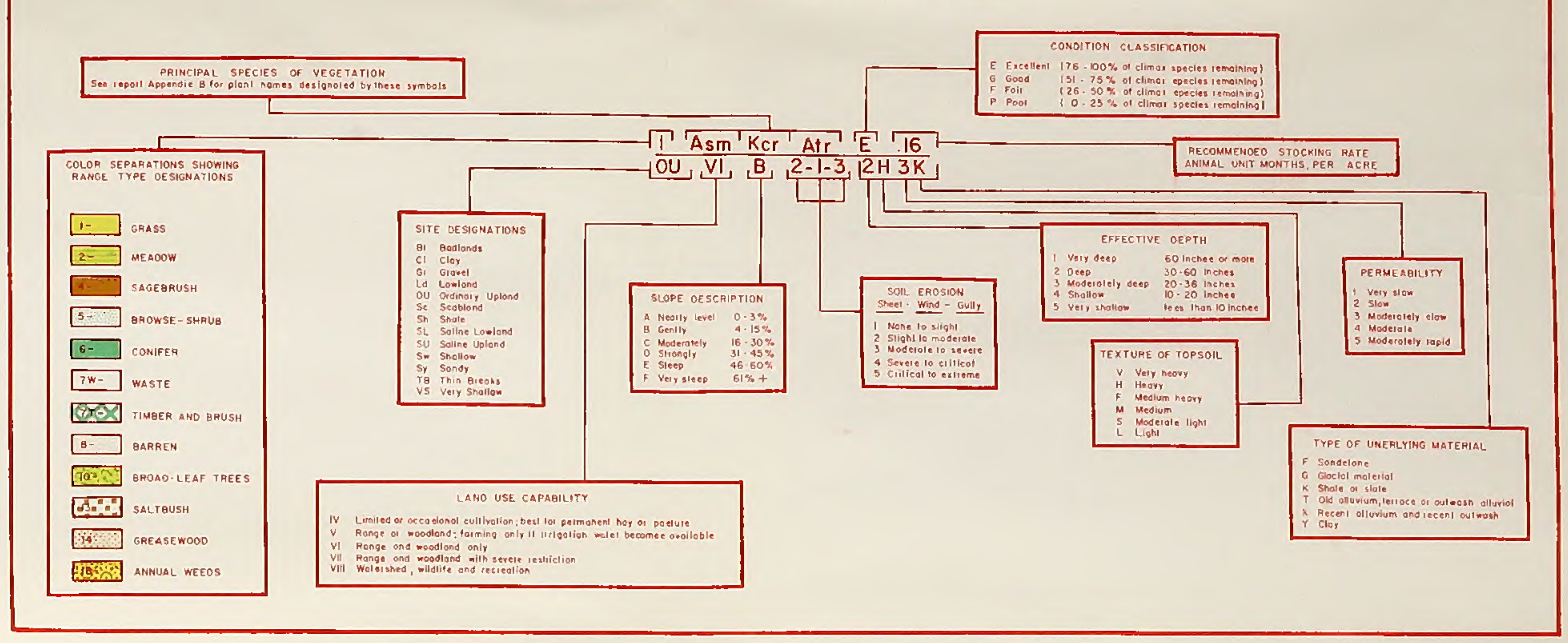
POTENTIAL IMPROVEMENT SITES

- Reservoir
- Detention Dam
- Spring with Trough
- Water Spreading Dikes
- Contour Furrows
- Reseeding
- Fence
- Unimproved Dirt Road

- Study Area Boundary Line (Missouri River Basin Studies, Bureau of Land Management)
- Formula Area Boundary Line
- FORT PECK GAME RANGE Study Area Boundary Line. Data shown compiled from range survey made by the Fish and Wildlife Service and Bureau of Land Management 1955.
- Boundary of Grazing District Area
- FORT PECK GAME RANGE Range type write-up Boundary Line
- Isolated Tract Classification



EXPLANATION OF SYMBOLS IN FORMULA



PRINCIPAL SPECIES OF VEGETATION
See report Appendix B for plant names designated by these symbols

COLOR SEPARATIONS SHOWING RANGE TYPE DESIGNATIONS

1-	GRASS
2-	MEADOW
4-	SAGEBRUSH
5-	BROWSE-SHRUB
6-	CONIFER
7W-	WASTE
7T-	TIMBER AND BRUSH
8-	BARREN
10-	BROAD-LEAF TREES
13-	SALTBUSH
14-	GREASEWOOD
16-	ANNUAL WEEDS

SITE DESIGNATIONS

Bl	Badlands
Cl	Clay
Gl	Gravel
Ld	Lowland
OU	Ordinary Upland
Sc	Scabland
Sh	Shale
SL	Saline Lowland
SU	Saline Upland
Sw	Shallow
Sy	Sandy
TB	Thin Breaks
VS	Very Shallow

SLOPE DESCRIPTION

A	Nearly level	0-3%
B	Gently	4-15%
C	Moderately	16-30%
D	Strongly	31-45%
E	Steep	46-60%
F	Very steep	61% +

LAND USE CAPABILITY

IV	Limited or occasional cultivation; best for permanent hay or pasture
V	Range or woodland; farming only if irrigation water becomes available
VI	Range and woodland only
VII	Range and woodland with severe restriction
VIII	Watershed, wildlife and recreation

CONDITION CLASSIFICATION

E	Excellent	(76-100% of climax species remaining)
G	Good	(51-75% of climax species remaining)
F	Fair	(26-50% of climax species remaining)
P	Poor	(0-25% of climax species remaining)

RECOMMENDED STOCKING RATE
ANIMAL UNIT MONTHS, PER ACRE

SOIL EROSION
Sheet - Wind - Gully

1	None to slight
2	Slight to moderate
3	Moderate to severe
4	Severe to critical
5	Critical to extreme

EFFECTIVE DEPTH

1	Very deep	60 inches or more
2	Deep	30-60 inches
3	Moderately deep	20-36 inches
4	Shallow	10-20 inches
5	Very shallow	less than 10 inches

TEXTURE OF TOPSOIL

V	Very heavy
H	Heavy
F	Medium heavy
M	Medium
S	Moderate light
L	Light

PERMEABILITY

1	Very slow
2	Slow
3	Moderately slow
4	Moderate
5	Moderately rapid

TYPE OF UNERLYING MATERIAL

F	Sandstone
G	Glacial material
K	Shale or slate
T	Old alluvium, terrace or outwash alluvial
k	Recent alluvium and recent outwash
Y	Clay

CLASSIFICATION FORMULAS
FORT PECK GAME RANGE

FORT PECK GAME RANGE formulas are limited to range type, two principal species and recommended stocking rate.

COLOR SEPARATIONS SHOWING RANGE TYPE DESIGNATIONS WITHIN THE FORT PECK GAME RANGE

1-	GRASS
4-	SAGEBRUSH
5-	BROWSE-SHRUB
6-	CONIFER
8-	BARREN
9-	JUNIPER
10-	BROAD-LEAF TREES
14-	GREASEWOOD
17-	HALF SHRUB

① GRASS
⑥ 1 Asm Bgr .21
⑮ 1 Bgr Asm .25
⑱ 1 Bgr Sco .19
㉑ 1 Cge Sco .15
㉔ 1 Bgr Cfi .27
㉕ 1 Asm Sco .26
㉖ 1 Cge JUP .05
㉗ 1 Bgr Asm .10
㉘ 1 Bgr Cfi .24
㉙ 1 Asc Clo .05
㉚ 1 Bgr Cfi .34
㉛ 1 Sco Asp .07
㉜ 1 Sco Afr .21
㉝ 1 Dsl Sve .18
㉞ 1 Bgr Cfi .15
㉟ 1 Cfi Sco .29
㊱ 1 Asm Bgr .35
㊲ 1 Bgr Cfi .10

④ SAGEBRUSH
② 4 Asm Atr .17
③ 4 Atr Asm .22
⑪ 4 Atr Asm .16
⑮ 4 Atr Asm .12
⑱ 4 Atr Asm .14
⑲ 4 Atr Sve .14
㉖ 4 Aca Sve .18
㉗ 4 Aca Atr .09
㉘ 4 Aca Afr .12
㉙ 4 Aca Asp .13
㉚ 4 Atr Asp .12
㉛ 4 Aca Bgr .15
㉜ 4 Atr CHY .10
㉝ 4 Atr Bgr .08
㉞ 4 Atr Bgr .14
㉟ 4 Sve Anu .09
㊱ 4 Atr Asm .05
㊲ 4 Atr Asm .08

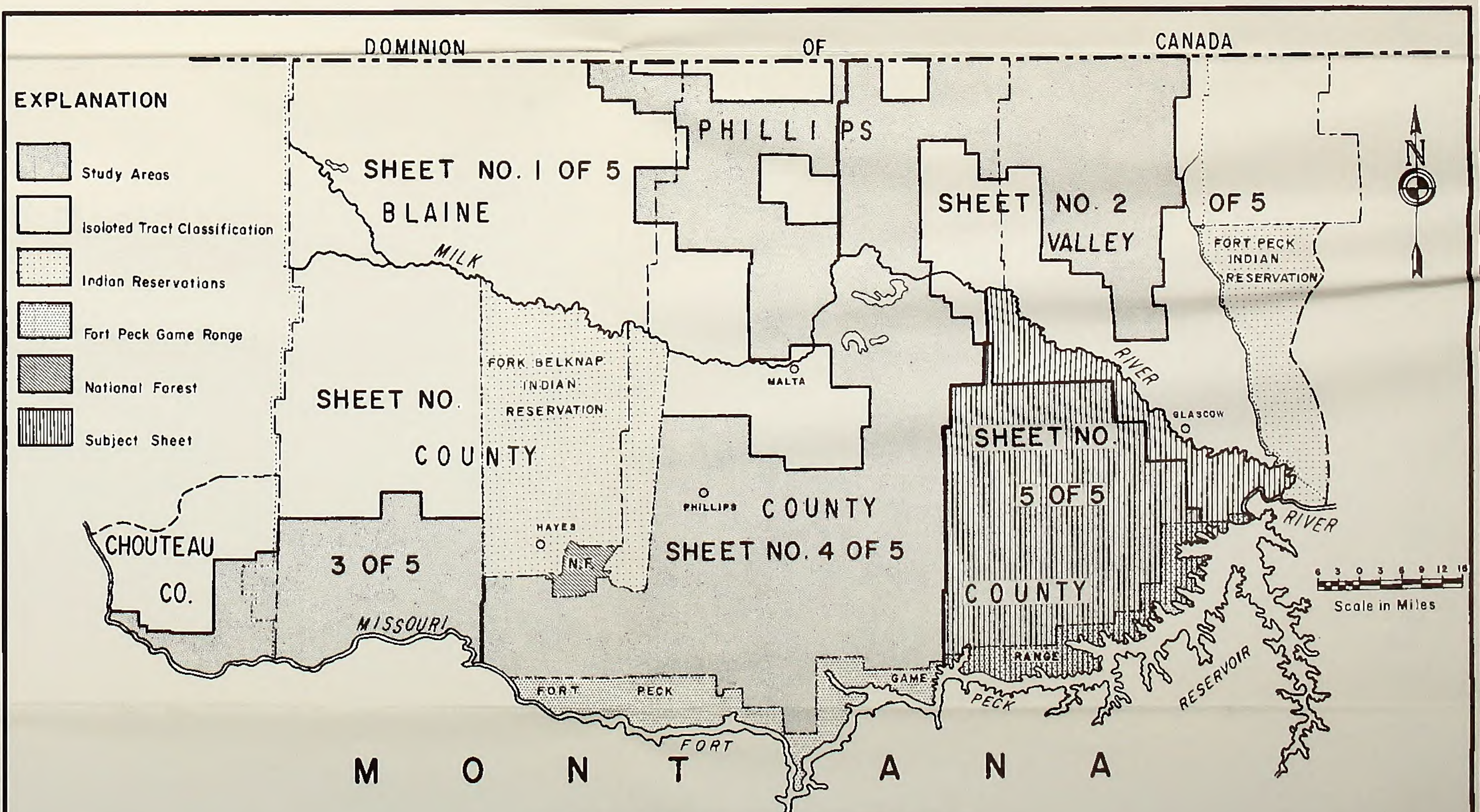
⑥ CONIFER
③ 6 Ppo JUP .07
⑤ 6 Ppo JUP .08
⑫ 6 JUP Atr .08
⑭ 6 Ppo Clo .09
⑮ 6 Ppo JUP .03
㉓ 6 Ppo JUP .14

⑧ ⑧ BARREN
① 8 Barren .00

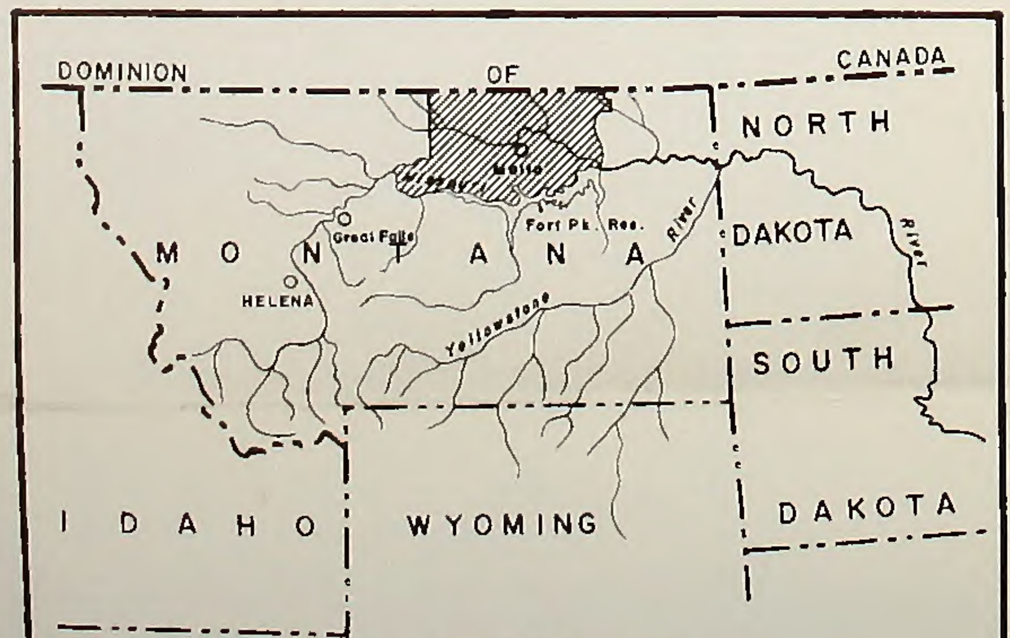
⑨ JUNIPER
① 9 JUP Atr .09
② 9 JUP Cge .14
③ 9 JUP Asp .05
④ 9 JUP Asm .12
⑤ 9 JUP Cge .11
⑥ 9 JUP Asc .12

⑭ GREASEWOOD
① 14 Sve Asm .13
⑤ 14 Sve Asm .11
⑱ 14 Sve CHY .23
㉓ 14 Sve Asm .09
㉔ 14 Sve Asm .07
㉗ 14 Sve Atr .08
㉘ 14 Sve Asm .02
㉚ 14 Sve Asm .04
㉜ 14 Sve Atr .05
㉟ 14 Sve Dsl .10
㊱ 14 Sve Asc .07
㊲ 14 Sve Atr .12
㊳ 14 Sve Cfi .12
㊴ 14 Sve Asm .05
㊵ 14 Sve CHE .02
㊶ 14 Sve Ain .01

⑰ HALF SHRUB
② 17 ERI Asc .08



INSET MAP OF MILK RIVER AREA
KEY TO 5 SHEETS



LOCATION MAP

Compiled and drafted by John L. Kovács · Area 3 · Denver, 1959.

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